777. In the following series of papers Prof. Heim and his collaborators report the results of their further studies on the hallucination-producing agarics of Mexico [cf. **3**, No. 158, 598–9]:

a. Heim (R.). **Diagnose latine du Psilocybe wassonii Heim, espèce hallucinogène des Aztèques.** [Latin diagnosis of *P. wassonii*, hallucination-producing species of the Aztecs.]—*Rev. Mycol., Paris*, **23**, 1, pp. 119–120, 1958.

b. Heim (R.) & Hofmann (A.). **Isolement de la psilocybine à partir du Stropharia cubensis Earle et d'autres espèces de champignons hallucinogènes mexicains appartenant au genre Psilocybe.** [Isolation of psilocybin from *S. cubensis* and other species of Mexican hallucination-producing fungi of the genus *Psilocybe*.]—*Ibid.*, **23**, 3, pp. 347–351, 1958. [See also *C. R. Acad. Sci., Paris*, **247**, pp. 557–561, 1958.]

c. Heim (R.) & Cailleux (R.). **Latina diagnosis Psilocybes sempervivae Heim et Cailleux, speciei mutantis hallucinogenae mexicanae per culturam obtentae.** [Latin diagnosis of *Psilocybe semperviva*, a mutant species of Mexican hallucinogenic fungus obtained in culture.]—*Ibid.*, **23**, 3, pp. 352–353, 1958.

d. Heim (R.), Hofmann (A.), Cailleux (R.), Brack (A.), & Kobel (H.). **Nouvelles observations sur les Agarics hallucinogènes du Mexique.** [New observations on the hallucination-producing Agarics of Mexico.]—Pp. 30, 1958. (Rev. mycol., Paris.) Fr. 150.

A reprint of **3**, No. 598–9 and a, a pre-print of b and c, together with an introduction by R. Heim.

e. Heim (R.). **Le syndrome narcoticien chez les champignons à action cérébrale.** [The narcotic syndrome in fungi exerting a cerebral effect.]—Reprinted from *Hist. med.*, **8**, 15 pp., 17 fig., 1958. [18 ref.]

A general review.

778. Singer (R.), Stein (S. I.), Ames (R. W.), & Smith (A. H.). **Observations on Agarics causing cerebral mycetisms.**—*Mycopathologia*, **9**, 4, pp. 261–284, 3 fig., 3 graphs, 1958.

A brief introduction by R. Singer (Instituto Miguel Lillo, Tucumán, Argentina) is followed by sections on 'An unusual effect from a species of Mexican mushroom, *Psilocybe cubensis*', by S. I. Stein (Chicago Alcoholic Treatment Center); 'The influence of temperature on mycelial growth of *Psilocybe*, *Panaeolus*, and *Copelandia*', by R. W. Ames (University of Michigan); 'A *Russula* provoking hysteria in New Guinea', by R. Singer [*R. nondobingi* Singer, a new sp.]; and by one 'About the identity of the weed Panaeolus or poisonous Panaeolus', by R. Singer and A. H. Smith [cf. **3**, No. 600, and see above].

779. Podpérová (Anna). **Nejnovější názory chemické složení a biogenetickou vystavou Muscarinu, jedovatého principu muchomůrky červené.** [The latest observations on the chemical composition and biogenetic constitution of agarics, especially of the poisonous red toadstool.]—*Čes. Mykol.*, **12**, 2, pp. 114–118, 1958.

A study on poisonous toadstools in Czechoslovakia, particularly *Amanita muscaria*.

780. Binet (L.) & Leblanc (M.). **Sur l'intoxication par l'amanite phalloïde.**

**Modifications du métabolisme lipides.** [On poisoning by *Amanita phalloides*. Modifications of lipid metabolism.]—*Pr. méd.*, **66**, 63, pp. 1413–1415, 1958.

Following a summary of previous work by the authors and other colleagues in Paris on the nature of *A. phalloides* poisoning, an account is given of the effect of the toxins on the lipid metabolism of rabbits. The total lipids in the blood plasma began to rise 28 hr. after the injection of a fatal dose of the toxins. They were approx. 4 times the normal level at the death of the animal at about 48 hr. The increase was almost entirely accounted for by the increase in the fatty acid fraction. Similar results were obtained for lipids of liver and muscle, but with a less marked proportional increase. Glucose and methionine therapy are again recommended as the most successful known treatment.

781. Martin (C.) & Palussière. **Étude biologique d'une intoxication phalloidienne familiale.** [Biological study of poisoning by *Amanita phalloides* in a family.]—*J. Méd. Bordeaux*, **135**, 7, pp. 709–720, 1958.

This report of a communication to the Société de pédiatrie de Bordeaux gives a detailed description of the symptoms, investigation, and treatment of 3 cases of *A. phalloides* poisoning in 1 family. The father, who ate the fungi fried in oil, died within 24 hr., showing the classical symptoms. A son and daughter, aged 3 and 4 yr., were given an omelette fried in the same oil, and both, after a latent period of 48 hr. became gravely ill with hepatitis and nephritis, but no gastro-intestinal symptoms or electrolyte disorders. The boy died quickly with a generalized haemorrhagic syndrome, while the girl recovered slowly. Treatment was symptomatic only.

782. Kulik (Y. Î.). Вивчення властивостей ліпідів Гороху, ураженого грибом **Aspergillus flavus Link.** [A study of the properties of mouldy Peas infected by *A. flavus*.]—*J. Microbiol., Kiev*, **19**, 3, pp. 36–43 , 1957. [Russian summary.]

In the Staro-Kadoms'ki district, Ryazan' region, U.S.S.R., the toxins in Pelyushka peas infected by *A. flavus* were shown to exist both free and combined with lipids. Tests on the eye conjunctiva of rabbits and *per os* in cats, showed the toxin to be a fraction of the fatty acid which was isolated by saponification. Death followed when fatty acid at 4–4·5 g./kg. live-weight was introduced *per os* in cats. From 30-day-old cultures of *A. flavus* on sterilized peas a toxin was obtained causing alimentary toxicosis in animals.

783. Rubinstein (Y. I.). Люминесценция грибов **Fusarium sporotrichiella.** [Luminescence of the fungus *F. sporotrichiella*.]—*Microbiology, Moscow*, **25**, 2, pp. 171–174, 1 col. pl., 1956.

An examination of 41 strains of *F. sporotrichiella* at the Institute for Nutrition, Soviet Academy of Science, demonstrated that toxicity is associated with orange luminescence.

784. Cunningham (I. J.). **Non-toxicity to animals of ryegrass endophyte and other endophytic fungi of New Zealand grasses.**—*N.Z. J. agric. Res.*, **1**, 4, pp. 489–497, 1958.

It is reported from the Animal Research Station, Wallaceville, that in feeding experiments on fowls, sparrows, rats, mice, and sheep rye-grass [*Lolium*] infected by the blind seed fungus (*Gloeotinia temulenta*) and perennial rye-grass, tall fescue [*Festuca arundinacea*], and darnel [*L. temulentum*] carrying their endophytes were non-toxic.

785. Burnside (J. E.), Sippel (W. L.), Forgacs (J.), Carll (W. T.), Atwood (M. B.), & Doll (E. R.). **A disease of Swine and Cattle caused by eating moldy corn. II. Experimental production with pure cultures of molds.**—*Amer. J. vet. Res.*, **18**, 69, pp. 817–824, 1957. [*V.B.*, **28**, No. 1730.]

Of 13 cultures obtained at the Animal Disease Dept, Georgia Coastal Plain Experimental Station, Tifton, Maryland, from maize from fields in which there had been mortality among pigs, 11 (*Aspergillus flavus*, 8; *Fusarium moniliforme* [*Gibberella fujikuroi*], 3) were not toxic. The other 2 were *A. flavus*, toxic to both pigs and mice, and *Penicillium rubrum*, toxic to 4 horses and a goat. The toxicity of the mouldy substrates was unchanged by heating to 60–70° C. for 26 hr. or by storage in a cool dry place for 61 days. The active principle, toxic to horses, formed by *P. rubrum* growing on ground dried maize, was present in the aqueous supernatant extract. Gross histological lesions induced by the moulds are described.

786. Iwanoff (X.), Yuan Chang-Kuo, & Fang Shih-Chieh. **Über die toxische Enzephalomalazie (mouldy corn poisoning) der Einhufer in China.** [On toxic encephalomalacia (mouldy corn poisoning) of Solipeds in China.]—*Arch. exp. Vet-Med.*, **11**, pp. 1036–1056, 18 fig., 1957.

From the Institut für experimentelle Veterinärmedizin, Sofia, Bulgaria, the authors report their observations, in several Chinese provinces, of an acute encephalitic condition resembling the 'moldy corn poisoning' of American authors [see above], affecting donkeys for the most part, but also horses and mules. It occurred mainly in autumn, and was reproduced, within 11–53 days, in 8 of 14 donkeys and horses fed on mouldy corn obtained from the affected estates. The fungus involved was not identified. Histological findings are given in detail.

787. Oksamitnyi (N. K.) & Vlasov (A. T.). О случае массового отравления Свиней головневыми грибами. [Mass poisoning of Pigs, with ustilaginous fungi.]—Ветеринария [*Veterinariya, Moscow*], **35**, 10, p. 83, 1958.

In the Mikhaylov district, Zaporozh'ye region, U.S.S.R., when pigs of different ages were fed with smutted [*Ustilago maydis*], uncooked maize meal poisoning and fits occurred only in pigs 2–4 months old. The animals were severely weakened and developed conjunctivitis and irritation of the upper respiratory tract (with cough). In the more severe cases there was oedema of the lungs.

788. Rieth (H.) & El Fiki (A. Y.). **Renaissance der animalen Mykologie.** [Renaissance of animal mycology.]—*Berl. Münch. tierärztl. Wschr.*, **71**, 20, pp. 391–394, 11 fig., 1958.

Popular notes on recent advances.

789. Kirk (R.). **Mycoses of Malaya and Singapore.**—*J. trop. Med. Hyg.*, **67**, 1, pp. 10–17, 1959. [29 ref.]

Information (primarily clinical) is presented on: (*a*) the superficial mycoses, tinea [pityriasis] versicolor (*Malassezia tropica* and *M. furfur*), tinea nigra (*Cladosporium mansonii*), tinea capitis (*Microsporum* spp.), tinea pedis (*Trichophyton mentagrophytes* and *Epidermophyton floccosum*), tinea cruris (*T. rubrum* and *E. floccosum*), tinea imbricata (*T. concentricum*), tinea nodosa [black-piedra] (*Piedraia malayi*) [1, No. 1746], otomycoses (*Aspergillus*, *Monilia* [*Candida*], and *Mucor* spp.), chromomycosis (several closely related [unspecified] fungi), onychomycosis (many different spp.), and the miscellaneous conditions 'black tongue' (? *Cryptococcus* sp.) and pustular eruptions of the axilla and ankle region due to *Penicillium* sp. and *A. niger*, respectively; (*b*) systemic mycoses, represented by moniliasis (*Candida albicans*), 2 groups of mycetoma (1 caused by *Allescheria boydii* and other spp. and the 2nd by *Streptomyces* and *Nocardia* spp.), blastomycosis (*Blastomyces*

*dermatitidis*), cryptococcosis (*C. neoformans*), histoplasmosis (*H. capsulatum*), and rhinosporidiosis (*R. seeberi*).

790. Csillag (Anna). **System-Mykosen in Ungarn.** [Systemic mycoses in Hungary.]—*Dtsch. med. Wschr.*, **38**, 47, pp. 2075–2078, 7 fig., 1958.

This information has already been noticed [**3**, No. 466].

791. Procknow (J. J.) & Loosli (C. G.). **Treatment of the deep mycoses.**—*Arch. intern. Med.*, **101**, 4, pp. 765–802, 1958. [443 ref. *B.H.*, **33**, p. 847.]

This most valuable, well-documented review from the Dept of Medicine, University of Chicago, deals concisely with advances during the past 10 years in the treatment of histoplasmosis (*Histoplasma capsulatum*), North American blastomycosis (*Blastomyces dermatitidis*), coccidioidomycosis (*Coccidioides immitis*), actinomycosis (*Actinomyces bovis* [*A. israelii*]), nocardiosis, cryptococcosis (*Cryptococcus neoformans*), moniliasis (*Candida albicans*), aspergillosis (*Aspergillus fumigatus*), sporotrichosis (*Sporotrichum schenckii*), geotrichosis (*Geotrichum candidum*), and mucormycosis (*Mucor, Rhizopus, Absidia* spp.).

792. Gaté (J.) & Coudert (J.). **Traitement des mycoses.** [The treatment of mycoses.]—279 pp., Paris, G. Doin & Cie, 1958.

This work may be regarded as a companion volume to Coudert's *Guide pratique de mycologie médicale* [**2**, No. 1725]. The 1st part (pp. 17–82) deals with the general characters of the mycoses and covers the fungi affecting man, the relationships between fungi and man, the general bases of treatment, and antimycotic preparations. The 2nd part (pp. 85–266) contains 3 chapters covering, respectively, mycoses of the epidermis; deep-seated, visceral mycoses; and irritative and allergic mycoses induced by contact (including forms of mycotic dermatitis and respiratory and digestive manifestations). This latter part is concerned also with the methodical study of the various mycotic syndromes, their etiological and pathogenic characters, symptomatology and diagnosis, general rules for treatment, and prophylactic data. A bibliography of 244 titles is appended and there is an alphabetical index.

793. Segretain (G.), Drouhet (E.), & Mariat (F.). **Diagnostic de laboratoire en mycologie médicale.** [Laboratory diagnosis in medical mycology.]—143 pp., 25 fig., St. Mandé (Seine), Éditions de la Tourelle, 1958. [16 ref.]

In this handy little book, illustrated with line-drawings, the authors, using as few technical terms as possible, summarize the methods of diagnosing pathogenic fungi employed today at the Institut Pasteur. The 7 chapters deal, respectively, with fungi (colonies, microscopic forms, physiology); general considerations on mycoses: their causes, and methods of diagnosis; mycological methods and techniques; mycoses of the skin and the mucous membranes; subcutaneous mycoses; deep-seated mycoses; and formulae for media and special technical purposes. There is a glossary, and of the references cited 11 are in English.

794. Chute (H. C.) & O'Meara (D. C.). **A bibliography of avian mycoses. (Partially annotated.)**—*Misc. Publ. Maine agric. Exp. Sta.* 631, 81 pp., 1957.

This useful compilation lists more than 520 publications referring to all aspects of mycotic infections of birds. Many entries are helpfully annotated and there are indexes to the types of bird and the organs affected, the genera of fungi involved, and treatment and control.

795. Cooke (W. B.). **The ecology of the fungi.**—*Bot. Rev.*, **14**, 6, pp. 342–429, 1958. [498 ref.]

Brief and general mention is made of *Histoplasma capsulatum, Blastomyces der-*

*matitidis*, *Coccidioides immitis*, and *Candida albicans* in a section on fungi pathogenic for man and higher animals (pp. 370–375).

796. Cooke (W. B.) & Foter (M. J.). **Fungi in used bedding materials.**—*Appl. Microbiol.*, **6**, 3, pp. 169–173, 1958.

Among the many fungal spp., represented by large numbers of spores, found in mattress materials examined at the Robert A. Taft Sanitary Engineering Center, Cincinnati, before and after heat treatment, were *Aspergillus fumigatus*, *A. niger*, *Sporotrichum schenckii*, and other spp. of *A.* and *Penicillium*.

797. Bone (J. N.) & O'Day (D. W.). **Synthesis and biotesting of metallic surfactants.**—*J. Amer. pharm. Ass.*, **47**, 11, pp. 795–799, 1958.

At the College of Pharmacy, Laramie, Wyoming, the activity of the Ag, Hg, Pb, Zn, Cu, and Fe salts of lauryl sulphate, dioctylsulphosuccinate, and isopropylnaphthalene were tested, *inter alia*, against *Trichophyton mentagrophytes*. The anti-fungal effects of all 6 metals in the form of their surface-active (surfactant) salts was greater than the corresponding chlorides, nitrates, or sulphates. The lauryl sulphate salts of Hg and Ag were more toxic to the fungus than the same salts of the other 2 surfactants.

798. Mackinnon (J. E.), Artagaveytia (R. C. A.), & García Zorrón (N.). **Acción fungistática de la diamidinodifenilamina sobre los agentes de micosis profundas.** [Fungistatic action of diamidinodiphenylamine on the causal organisms of deep mycoses.]—*Rev. lat.-amer. Microbiol.*, **1**, 2, pp. 153–158, 1958.

Tests were made at the Instituto de Higiene, Montevideo, to determine the min. conc. of the drug which inhibited pathogenic fungi cultivated on nutrient glucose agar + 20% horse serum, pH 6·8–7, at 30° C. for 10 days. Conc. < 10 μg./ml., and in the majority of cases < 5 μg./ml., completely inhibited 9 strains of *Paracoccidioides brasiliensis*, 2 of *Coccidioides immitis*, 4 of *Histoplasma capsulatum*, 2 of *Blastomyces dermatitidis*, 2 of *Sporotrichum schenckii*, 5 of *Cryptococcus neoformans*, 3 of *Phialophora pedrosi*, 1 of *P. compactum*, 1 of *Cladosporium carrionii*, 1 of *C. trichoides*, and 1 of *C. herbarum*. A culture of *P. verrucosa* able to grow at 10 μg./ml. was inhibited at 50 μg.

799. Razin (S.), Cohen (Ada), & Rozansky (R.). **Antimycotic effect of spermine.**—*Proc. Soc. exp. Biol., N.Y.*, **99**, 2, pp. 459–462, 1 graph, 1958.

At the Hebrew University—Hadassah Medical School, Jerusalem, spermine, a biological polyamine widely distributed in animal tissues and also occurring in yeasts, inhibited the growth in nutrient broth + 0·5% glucose of several spp. of yeasts, *Debaryomyces* and *Saccharomyces* being the most sensitive and *Cryptococcus neoformans* moderately so. The anti-fungal effect was more pronounced at an alkaline than at an acid pH and was antagonized by inorganic salts.

800. Noguchi (Y.) & Kato (Y.). **Effect of sodium ethylmercurithiosalicyclate on succinic dehydrogenase of Candida albicans and its clinical use in dermatomycoses.**—*Yokohama med. Bull.*, **9**, 4, pp. 204–208, 1 fig., 1958.

In tests at the Yokohama University School of Medicine the drug (also known as merzonin, mersilon, merthiolate, and thimerosal) at 1 μg./ml. totally inhibited the growth of *Trichophyton rubrum*, *T. interdigitale*, *Microsporum japonicum*, and *C. albicans* on Sabouraud's agar or bouillon. Its antimycotic effect is 100–1,000 times higher than that of the non-mercurials previously used. The compound also inactivated the succinic dehydrogenase of *C. albicans* in 24 hr. at 20 and in 1 hr. at 100 μg./ml.

Of 159 patients treated either with 0·5% ointment or an aqueous solution (1: 5,000), 68 were completely relieved and 39 moderately or considerably improved after a 20-day course.

801. Mikhovskaya (Mme N. D.), Rotmistrov (M. N.), Stetsenko (A. V.), & Kulik (G. V.). Изучение антигрибковых свойств хлоранилидов салициловой кислоты и карвакрола. [Study of the antifungal properties of chloranil derivatives of salicylic acid and carvacrol.]—*Proc. Lenin Acad. agric. Sci.*, **21**, 9, pp. 35–38, 1958.

At Kiev State University, of the 8 chloranil derivatives tested *in vitro* against *Trichophyton gypseum* [*T. mentagrophytes*], *T. violaceum*, *Epidermophyton* Kaufmann-Wolf [*T. interdigitale*], *Candida albicans*, and *C. stellatoides*, 2′-chloranilide of salicylic acid ($1:10^6$) was the best.

*Trichophyton* infection of the skin and of the mucous membranes of the lower lips in calves was eradicated within 2–3 weeks by ointments containing 3% anilides of salicylic acid, or 3% 4′-chloranilide of 5-chlorosalycilic acid or 2% carvacrol.

802. Maruzzella (J.) & Henry (P. A.). **The antimicrobial activity of perfume oils.**—*J. Amer. pharm. Ass.*, Sci. Ed., **47**, 7, pp. 471–476, 1958.

The following are some of the results of tests at the Biology Dept, Long Island University, Brooklyn, New York, with 100 perfume oils on cultures of 10 spp. each of fungi and bacteria, using the filter paper disk method. The efficacy of the substances was remarkable, especially against the fungi. The most active against *Mucor mucedo* was almond S, with an inhibition zone of 78 mm.; against *Candida krusei* (the most resistant fungus) cinnamon and lilac water (10 mm.); against *Aspergillus niger* citrus odor No. 50 B (35 mm.); against *C. tropicalis* and *Penicillium notatum* lemon bouquet No. 58 (50 mm.), the latter sp. being similarly inhibited by allspice; and against *C. albicans* Cologne 'F' European type (20 mm.).

803. Fujikawa (F.), Hitosa (Y.), Nakazawa (S.), & Omatsu (T.). **Antibacterial and antifungal action of lichen substances and their derivatives.**—*J. pharm. Soc. Japan*, **77**, 3, pp. 307–309, 1957. [Japanese. Abs. from English summary.]

Of 201 lichen components and decomposition products and their derivatives examined at the Medical University, Kyoto Prefecture, only 1 inhibited the growth of *Candida albicans* $M_{10}$, viz., methyl squamatate at 1/80,000.

804. Uri (J.). **Menschenpathogene Pilze in der Antibiotikum-Forschung. II. Gegen menschen-pathogene Pilze wirksame, von Actinomyceten stammende Antibiotika.** [Fungi pathogenic for Man in antibiotic research. II. Antibiotics from actinomycetes, active against fungi pathogenic for Man.]—*Arzneimittel-Forsch.*, **8**, pp. 687–692, 1 fig., 1958.

After a brief review of research on actinomycetes showing antibiotic activity [cf. **3**, No. 638] short descriptions are given of actidione, actinomycin, actinone, aliomycin, amphotericin A and B, anisomycin, antifungal substance 1968 (nepera), antimycin A, antimycoin (fungicidin RAW), ascosin, and aureofacin, covering origin, production, and chemical, physical, and biological properties.

805. Stefanini (M.) & Marin (H.). **Fibrinolysis. I. Fibrinolytic activity of extracts from non-pathogenic fungi.**—*Proc. Soc. exp. Biol. N.Y.*, **99**, 2, pp. 504–507, 3 fig., 1958.

A study at the Dept of Medicine, Tufts University, Boston, Massachusetts, of the properties of extracts from cultures of 160 fungi demonstrated the production by 4 (2 strains of *Aspergillus oryzae* and 1 each of *A. flavus* and *Absidia coerulea*) of non-

protein materials capable of the lysis of plasma clots and fibrin of both human and bovine origin.

806. Schwarzenbeck (F. H.). **Differentiation in the germination test of bases separated by ionophoresis.**—*Excerpta Medica, Sixth International Congress of Neurology, Brussels*, pp. 26–27, 1957.

Ionophoretic separation of individual urine fractions generally gives spots representing mixtures of several bases. Spores of *Helminthosporium sativum* [*Cochliobolus sativus*] and *Alternaria tenuis* were placed directly on cuttings from the ionophoretic paper strips. Urine fractions of multiple sclerosis patients promoted germination of *C. sativus* and inhibited that of *A. tenuis*, while the reverse effect was found with urine fractions from schizophrenics.

807. Gottlieb (D.). **Agenda for Round Table evaluation of criteria for taxonomy.**—*Int. Bull. bact. Nom. Taxon.*, **9**, 1, pp. 13–14, 1959. Küster (E.). **Protocol of the 'Round Table conference on Streptomyces' on the occasion of the 7th International Congress of Microbiology, Stockholm, August 4 and 5, 1958.**—*Ibid.*, pp. 15–26, 1959. Welsch (M.). **Remarks on the classification of Streptomyces.**—*Ibid.*, pp. 27–29, 1959. Hutter (R.). **Identification of streptomycetes.**—*Ibid.*, pp. 31–34, 1959.

In the Protocol summarizing this meeting it is noted that recent systematic work has dealt mainly with organisms producing antibiotics. The most important problem is considered to be the careful definition of species and the 1st step should be the designation and description of neotypes for many earlier spp.

Attention was drawn to the need to define the media used for identification and maintenance of cultures.

For characterization, consideration of the general morphology of the colony is desirable, and the following definitions of mycelia were agreed: 'substratum mycelium': the totality of the hyphae growing in the agar or solution; 'aerial mycelium': the totality of the mycelium parts which rise above the surface of the substratum; 'vegetative mycelium': the totality of the mycelium not dividing into spores; and 'sporophores': the parts of the mycelium dividing into spores. The importance of sporophore structure and the method of spore formation (whether by segmentation or fragmentation) was agreed. Spore morphology by ordinary methods was considered to be of limited value but a description of spores as shown by the electron microscope is essential. Colour of the aerial mycelium, but not of the substratum mycelium or of the medium, is considered a diagnostic character. Other diagnostic characters are reduction of nitrates, gelatin liquefaction (if time required is stated), and possibly milk peptonization. The value of carbohydrate and nitrogen utilization tests is uncertain; production of and sensitivity to antibodies are not diagnostic.

Points made in the Protocol are amplified and discussed in the last 2 papers.

808. Gordon (Ruth E.) & Mihm (Joan M.). **A comparison of Nocardia asteroides and Nocardia brasiliensis.**—*J. gen. Microbiol.*, **20**, 1, pp. 129–135, 1959.

Following a comparison at the Institute of Microbiology, Rutgers University, New Brunswick, of the physiological characteristics of 98 strains of *N. asteroides* and 50 of *N. brasiliensis*, including old strains and variants as well as freshly isolated strains, it is concluded that these two spp. are distinct. Data are tabulated.

809. Dobek (Maria). **Action de l'isoniazide sur Nocardia asteroides in vitro et in vivo.** [Action of isoniazid on *N. asteroides in vitro* and *in vivo*.]—*Ann. Inst. Pasteur*, **96**, 1, pp. 116–119, 1959. [English summary.]

The growth of 9 strains of *N. asteroides* on a liquid synthetic medium reinforced by

an oligo-dynamic solution was totally inhibited by INH at 2,500–5,000 μg./ml., while 1 (probably of another sp.) succumbed at 156 μg./ml. No corresponding influence was exerted, however, on the course of infection in mice. No loss of catalase activity was observed in the strains grown in contact with INH.

810. Nicod (J. L.) & Barras (G.). **Actinomycose à Nocardia (nocardiose).** [Actinomycosis due to *Nocardia* (nocardiosis).]—*Rev. méd. Suisse rom.*, **78**, 4, pp. 234–243, 4 fig., 1958.

A full report from the Institut d'Antoine pathologique, University of Lausanne, on a fatal case of infection by *Nocardia* sp. involving the left lung and other organs in a 47-yr.-old male patient at the Sanatorium Valaisan, Montana.

811. Awad (F. I.) & Karib (A. A.). **Studies on bovine farcy (nocardiosis) among Cattle in the Sudan.**—*Zbl. vet. Med.*, **5**, 3, pp. 265–272, 4 fig., 1958. [French, German, and Spanish summaries. *V.B.*, **28**, No. 3535.]

It is reported from the Veterinary Research Division, Dept of Animal Production, Khartoum, that 2 distinct types of bovine farcy occur in the Sudan: (*a*) a chronic purulogranulomatous inflammation of the subcutis involving the lymph vessels and nodes, which may or may not be accompanied by internal lesions; (*b*) a pulmonary form which closely resembles tuberculosis.

From all the 11 cases investigated (and briefly described) an acid-fast actinomycete was demonstrated by direct smears. From cultural characters, pathogenicity, and biochemical activities the organism is identified with *Actinomyces farcinicus* [*Nocardia farcinica*].

812. Memery (G.), Mornet (P.), & Camara (A.). **Premiers cas authentiques de farcin du bœuf en Afrique occidentale française. Note préliminaire.** [First authentic cases of bovine farcy in French West Africa. Preliminary note.]—*Rev. Élev.*, **11**, pp. 11–16, 1958. [English and Spanish summaries. *V.B.*, **29**, No. 356.]

During 1957 *Nocardia farcinica* was recorded on cattle in Senegal.

813. Pier (A. C.), Gray (D. M.), & Fossatti (M. J.). **Nocardia asteroides—a newly recognised pathogen of the mastitis complex.**—*Amer. J. vet. Res.*, **19**, 71, pp. 319–331, 10 fig., 1958. [35 ref.]

This comprehensive report from the School of Veterinary Medicine, University of California, Davis, records the isolation of *N. asteroides* from the milk of 28 cows (18%) of a dairy herd, a new record for the United States. The naturally infected cows showed extensive fibrosis and palpable granulomatous nodules in the affected glands and the milk contained grossly visible white clumps of mycelia. One cow died.

Microscopically the lesions showed extensive fibrosis, granuloma formation and hypertrophic reaction of ductile and granular epithelium. The lobular distribution of reaction indicated an ascending infection.

*N. asteroides* was isolated from soil samples of all the holding corrals on the infected farm.

A mixture of novobiocin (albamycin) (500 mg.) and 25–40 ml. 2% nitrofurazone (furacin) solution was infused into selected quarters twice daily with successful results.

[For a preliminary account of this work see **3**, No. 481; *V.B.*, **28**, p. 239.]

814. Dafaala (E. N.) & Gharib (H. M.). **A study of mastitis in a Goat caused by Nocardia asteroides.**—*Brit. vet. J.*, **114**, pp. 143–145, 1958.

In this case reported from the Faculty of Veterinary Science, University of Khartoum, Sudan, *N. asteroides* was the agent of a caseating granulomatous mastitis in

a goat. The cultural characteristics of the organism are described in some detail. The diagnosis was confirmed by P. K. C. Austwick and by G. A. de Vries.

815. Narasinga Rai (B.) & Chandrasekharan Nair (K. P.). **Nocardiosis (actinomycosis) in a Dog. A pathological and bacteriological study.**—*Indian vet. J.*, **35**, 6, pp. 280–287, 4 fig., 1958.

A report from the Veterinary College, Madras, India, of a case of nocardiosis in a dog, attributed to *Nocardia asteroides*. The morphology and cultural characteristics of the organism are described.

816. Eikmeier (H.). **Die Behandlung der Streptotrichose des Hundes mit Penicillin-Streptomycin.** [Treatment of canine streptothricosis with penicillin-streptomycin.]—*Dtsch. tierärztl. Wschr.*, **64**, 13, pp. 303–304, 1957.

At the Medizinische und Gerichtliche Veterinärklinik der Justus Liebig Hochschule, Giessen, Germany, *Nocardia canis* was isolated from purulent peritoneal fluid in 2 of 3 cases, and in the 3rd from superficial abscesses at various sites. All responded to streptomycin sulphate (intraperitoneal injection of 1 g. daily in physiological saline) and penicillin (intramuscularly, 400,000 or 500,000 units daily).

817. Austwick (P. K. C.) & Davies (E. T.). **Mycotic dermatitis in Great Britain 1954–58.**—*Vet. Rec.*, **70**, 49 (part 2), pp. 1081–1086, 4 fig., 1958. [Discussion, pp. 1086–1089.]

This report from the Central Veterinary Laboratory, Weybridge, and the Veterinary Investigation Centre, Langford, deals with *Dermatophilus dermatonomus* infection in sheep [**3**, No. 482]. During 1954–58, 63 of 98 samples (counted as 1 per flock) examined were positive and of 35 affected flocks for which data were available 22 were Clun or Clun cross.

Except for short periods after shearing the external appearance of the affected animals has often not shown any signs of the disease but experience often enables sheep with hidden zones of scales in the wool to be picked out. The most noticeable external feature is scabby lesions on the ears and nose. Basically the lesion is a pustular and exudative dermatitis which is followed by scab formation.

The standard method of laboratory examination is to prepare a fixed smear from pieces of scab moistened for about 5 min. with sterile saline or water. After staining in 1:10 Giemsa for 30 min. the preparation is examined under oil immersion, when filaments of the organism, frequently broken up into short lengths, 2–5 $\mu$ wide, may be seen to be divided into as many as 8 rows of cocci.

Culture of the organism, which proved difficult, was accomplished on 5% bovine blood agar at 37° C.

The epidemiology of the disease, in which rain plays an important part, is discussed, preliminary attempts at control with a proprietary copper sulphate dip are summarized, and in conclusion the economic importance of the infection is considered.

818. Salvatore (G.) & Califano (L.). **Ricerche sul potere patogeno di actinomiceti coltivati nella cavità allantoidea di embrione di Pollo.** [Researches on the pathogenic ability of actinomycetes cultured in the allantoid cavity of the Chick embryo.]—*R. C. Accad. Lincei*, Ser. 8, **23**, 5, pp. 207–216, 2 graphs, 1957. [33 ref.]

At the Istituto di Patologia Generale, University of Naples, *Proactinomyces ruber*, *Actinomyces* [*Streptomyces*] *madurae*, and *A.* [*S.*] *griseus* were grown on Baldacci's modified Czapek's agar, Sabouraud's difco maltose agar, potato agar+2% glucose,

peptonized water+4% glucose, and in the allantoid fluid of fertilized eggs on the 12th day of development. Inoculations were made into fertilized eggs incubated at 36·5° C., and 80% R.H., (*a*) in the allantoic cavity on the 10th day of incubation; (*b*) in the chorio-allantoic membrane on the 12th day; (*c*) and in the amniotic cavity on the 13th day. On the 16th day the surviving embryos were killed by exposure to 4° for 8–10 hr. The allantoic or amniotic fluid was taken and one part inoculated into other embryos while the other part was submitted to microscopic and cultural examination.

The results clearly demonstrated that the allantoic cavity of the chick embryo is suitable for the culture of the 3 organisms tested. Inoculation of the allantoic cavity was the simplest and most reliable method of assessing the pathogenic effect on the embryo. By using series of transfers it became possible to estimate the increase in pathogenicity of the organisms towards embryos. This increase is also shown towards laboratory animals.

819. Ito (K.) & Rieth (H.). **Medizinische Mykologie. II. Geschichte der Systematik der Dermatophyten.** [Medical mycology. II. History of the systematics of dermatophytes.]—*Bull. pharm. Res. Inst., Osaka*, **15**, pp. 14–21, 24 fig., 1958.

Popular well-illustrated notes on the classifications of Sabouraud (1910), Castellani (1923, 1927–28), Ota & Langeron (1924–26), Grigoraki & Guiart (1927), and Bruhns & Alexander (1928).

820. Stockdale (Phyllis M.). **Occurrence of Microsporum gypseum, Keratinomyces ajelloi and Trichophyton terrestre in some British soils.**—*Nature, Lond.*, **182**, 4651, p. 1754, 1958.

Examination by baiting with human hair samples of clay-on-limestone soil in Petri dishes collected from farmland, garden, woodland, and other localities in the Bath region, disclosed the widespread occurrence of pathogenic keratophilic fungi. The results (from 30 samples) were: *K. ajelloi*: farm 1, garden 9, others 1; *K. ajelloi*+*M. gypseum*: 1, 1, 0; *K. ajelloi*+*T. terrestre*: 3, 0, 2; and negative: 2, 1, 9.

821. Rodriguez M. (J.). **Aislamiento de hongos patogenos del suelo.** [Isolation of pathogenic fungi from the soil.]—*Rev. ecuat. Hig.*, **15**, 1–2, pp. 5–12, 6 fig., 1958.

At the Facultad de Medicina, Universidad de Guayaquil, 7 soil samples from poultry runs, examined by Vanbreuseghem's hair bait method [1, No. 2544], yielded *Trichophyton mentagrophytes* (once) and *Microsporum gypseum* (4 times).

822. Donald (G. F.). **Tinea capitis in South Australia : a preliminary statement of cultural findings.**—*Med. J. Aust.*, **45** (ii), 14, pp. 452–454, 1958.

During 1954–57 *Microsporum canis* was responsible for 125 of 142 cases seen by the author in private practice and at the Children's Hospital, Adelaide, *Trichophyton tonsurans* for 15, and *T. violaceum* for 2. In a comparable investigation in Sydney during 1952–3, *M. canis* also predominated (67 of 82), while *T. tonsurans* was involved in 14 cases and *T. violaceum* in 1 [cf. **2**, No. 1935].

823. Corson (E. F.), Luscombe (H. A.), & Corson (J. K.). **Changes in the ten commonest dermatoses in private practise.**—*Arch. Derm., Chicago*, **79**, 2, pp. 179–183, 1959. [17 ref.]

Comparison between the incidence of 10 dermatoses encountered in a private practice in Philadelphia just prior to 1930 and in a 2nd survey of 3,419 cases in 1954–5 showed a change in the incidence of tinea (all types). From being the most prevalent dermatosis in 1930 (12·99%), it declined to 6th place (6·1%) in 1955.

824. Touraine (A.). **Le favus. Maladie sociale souvent méconnue.** [Favus. A social disease often overlooked.]—*Pr. méd.*, **66**, 53, pp. 1225–1227, 1958.

This survey from Paris, of favus caused by *Achorion* [*Trichophyton*] *schoenleinii*, includes discussions of the epidemiology of the disease in France, symptoms in classical and atypical cases, diagnosis, treatment, and prophylaxis. The incidence in Paris rose from 10% of all ringworms in 1900 to 31% in 1955. Its occurrence is localised, and most cases are found in industrial centres, having been imported by African immigrant workers. Prophylactic measures include the removal of infected children from schools and the refusal of entry permits to immigrants with the disease.

825. Reiss (F.) & Leonard (Louise). **Electron microscopic studies of ultrasonic irradiated Trichophyton mentagrophytes.**—*Dermatologica, Basel*, **117**, 5, pp. 401–406, 5 fig., 1958.

The principal changes induced by irradiation with a Siemens ultrasonator consisted of mechanical damage due to micro-waves. Besides mycelial breakage, swelling and rupture of the microconidia, and injury to the cell walls, cavity formation was a common feature. The non-irradiated controls appeared smooth. Their greater density in the centre, as compared with the paler border, is attributed either to the tubular shape of the hyphae or to the condensation of protoplasm in the former area.

826. Fujii (T.). **Biochemical studies on pathogenic fungi. VI. Nutritional studies on Trichophyton gypseum with special reference to its pleomorphism. VIII. The effect of synthetic fungicides and fatty acids on the respiration of Trichophyton gypseum. VIII. The effect of an antibiotic, trichomycin, on the respiration and metabolism of Trichophyton gypseum.**—*Pharm. Bull., Tokyo*, **5**, pp. 503–514, 1957. [Abs. in *Chem. Abstr.*, **52**, 20, col. 17370 C, 1958.]

At the Gifu Prefecture Medical School the dry weights of the normal and pleomorphic forms of *T. gypseum* [*T. mentagrophytes*] were compared after growth on media containing (1) mono-, di-, or polysaccharides besides correct N and mineral sources, and (2) 4 types of N compound, i.e. $(NH_4)_2SO_4$, Na L-glutamate, casein acid-hydrolysate (with DL-tryptophane and L-cystine), or peptone. The pleomorphic form grew better and assimilated more freely than the normal on monosaccharides and their development was far superior on NaHL-glutamate. The pleomorphic form, moreover, could even grow to some extent with ammonium N, which the normal was unable to utilize.

A close relation was observed between the respiration and growth-inhibiting effects of thiomercuric fungicides, cationic detergents, and hendecanoic acid $10^{-5}$ —$10^{-3}$ M. The pleomorphic form was much more sensitive to their action than was the normal one. The saturated fatty acids of the even-membered series from $C_2$ to $C_{16}$ stimulated the respiration rate of the fungus, the range of conc. required to produce this effect depending on chain length. Thus, the acids above $C_8$ exerted an inhibitory action in relatively higher conc., which was more marked at pH 5·5 than at 8. The effect, therefore, was stronger in the undissociated state than as an anion of the same acid and reached a max. at $C_{12}$. *T. mentagrophytes* was more sensitive to acid treatment than were the bacterial controls, *Escherichia coli* and *Staphylococcus aureus*.

Trichomycin stimulated the rate of O uptake of the fungus at 0·1–100 μg./ml. while inhibiting it at higher ones. The incorporation of P into the fungal cells was arrested by the antibiotic at all conc. above 0·1 μg./ml.

827. Troyan (G. A.). Спрямована мінлівість дерматофітів. [Induced variability

of dermatophytes.]—*J. Microbiol., Kiev*, **20**, 1, pp. 21–24, 1958. [Russian summary.]

At the Chernovtsy Medical Institute, Ukraine, when *Trichophyton violaceum* was grown on a culture filtrate of *T. gypseum* [*T. mentagrophytes*] a 'hybrid' was obtained which exhibited characteristics of both parents. The film-like colonies were similar to those of *T. violaceum* but they were non-pigmented and exhibited ellipsoidal aleuria and spirals. The variant was pathogenic to guinea-pigs.

828. Levit (F.). **Fluorescent material in scales, nails, and hair.**—*Arch. Derm., Chicago*, **79**, 1, pp. 96–98, 1959.

At the Northwestern University Medical School, Chicago, a fluorescent substance or a group of such substances [cf. **3**, No. 204], soluble in water but not in fat solvents, was obtained from scales from lesions of tinea versicolor [*Malassezia furfur*] strongly fluorescent under Wood's light, and also from other materials (psoriasis scales, normal human hair, human fingernail, and black hairs from guinea-pigs and dogs) showing no fluorescence.

829. Baichwal (R. S.), Baichwal (M. R.), & Khorana (M. L.). **Antibacterial and antifungal properties of β-naphthol derivatives V.**—*J. Amer. pharm. Ass.*, **47**, 8, pp. 537–541, 1 graph, 1958.

Among the more effective fungistatic compounds already tested against *Trichophyton gypseum* [*T. mentagrophytes*], *T. rubrum*, and *Epidermophyton floccosum* in a preliminary study at the Dept of Chemical Technology, University of Bombay [**3**, No. 327] were 1-bromo-, 6-bromo-, and 1:6-dinitro-β-naphthols. In further experiments they were shown to possess a good penetrative capacity in ointment and to be non-irritant to the intact skin of rabbits, while interference with wound-healing was not observed.

830. Rieth (H.), Ito (K.), Hansen (P.), & List (G.). **Prüfung antimycetischer Substanzen in Gummiqualitäten.** [Testing of antifungal substances in rubber of different qualities.]—*Bull. pharm. Res. Inst., Osaka*, **15**, pp. 9–13, 9 fig., 1958.

Shoe rubber containing the antifungal substance KS 55 is stated to be active against all the important agents of mycoses of the foot [cf. **3**, No. 220].

831. Wenk (P.), Lei (W.), & Frey (J. R.). **Klinische, therapeutische und mykologische Untersuchungen an 147 Patienten mit Fußmykosen.** [Clinical, therapeutic, and mycological investigations on 147 patients with foot mycoses.]—*Arch. klin. exp. Derm.*, **207**, pp. 617–638, 1 fig., 1958.

At the Abteilung für experimentelle Medizin, Hoffmann–La Roche & Co., Basel, the patients, mostly sportsmen (17–30 yr. of age), were clinically examined, and squamae removed for microscopical and cultural examination. They were then treated in 3 groups with 1 of 3 substances (Ro 2–5208/1, Ro 1–6796, and a placebo, as ointment, tincture, or powder) for 3 weeks, after which the examinations were repeated. The results indicated that such a test is adequate for clinical trials of substances which have shown promise *in vitro* and in tests with experimental animals.

832. Schirren (C.) & Rieth (H.). **Dermatologische Erfahrungen bei der ambulanten Behandlung von Fußmykosen.** [Dermatological experience in the ambulant treatment of foot mycoses.]—*Med. Klinik*, **53**, 41, pp. 1789–1792, 1958.

A popular note emphasizing the need for definite identification of the fungus, and for basing treatment on dermatological considerations: thus moist dressings are recommended for acute infections, with gradual transition to dry preparations. Treatment should be continued after clinical cure has been achieved. Data are

presented showing, for 1,189 patients, the number of cases of irritation induced by each of 6 antimycotics.

833. Chuckerbutty (B.). **Clinical trial of a new antimycotic drug (multifungin).**—*Indian J. Derm.*, **3**, 3, pp. 118–119, 1958. [*B.H.*, **34**, p. 45.]

Of 20 cases of dermatomycosis, which in India is stated to be caused mainly by *Trichophyton rubrum*, followed by *Epidermophyton floccosum*, 73% were cured and 24·5% improved by treatment with multifungin, a combination of a halogen-substituted salicylanilide (5-bromosalicyl-4′-chloranilide) and the antihistaminic soventol (N-phenyl-N-benzyl-4-amino-1-methyl-piperidine).

834. Rosenthal (S. A.), Fisher (Dorothy), & Furnari (Domenica). **A localized outbreak in New York of tinea capitis due to Trichophyton violaceum.**—*Arch. Derm., Chicago*, **78**, 6, pp. 689–691, 1958.

The clinical and laboratory findings in an outbreak of tinea capitis in a school for the mentally retarded are noted from University Hospital, New York. The 71 positive cultures from 88 attempts yielded (*a*) *T. violaceum*, 16 times; (*b*) *Microsporum audouinii*, 14; (*c*) *M. canis*, 8; a+b, 12; a+c, 12; b+c, 5; and a+b+c, 4 [cf. **3**, No. 661].

835. Rosenthal (S. A.), Furnari (Domenica), & Tolmach (J. A.). **Onychomycosis due to Microsporum gypseum.**—*Arch. Derm., Chicago*, **78**, 6, p. 759, 1958.

This is a case report from Bellevue Medical Center, New York, of an infection in a 34-yr.-old woman teacher. Cure was effected by treatment for 8 weeks with an ointment containing 3% salicylic acid+5% ammoniated mercury.

836. Evolceanu (R.) & Alteras (I.). **La Microsporum gypseum. Quelques observations cliniques et mycologiques concernant ce dermatophyte.** [*M. gypseum.* Clinical and mycological observations on this dermatophyte.]—*Mycopathologia*, **10**, 2, pp. 71–82, 9 fig., 1958. [English summary. 16 ref.]

Observations are recorded on 4 cases of human infection by *M. gypseum* studied in Bucarest, 2 with lesions in the beard or on the scalp, and 2 on glabrous skin. The most interesting case was that of a girl (8 yr.) with an infiltrated lesion 4–5 cm. diam. on the dorsal surface of the left wrist; 4 months previously the child had sustained a burn on the wrist, to which soil from a garden next to the house had then been applied. The fungus was subsequently isolated by the authors from soil in this garden and from soil from another part of Bucarest. Inoculations of men, mice, and guinea-pigs with strains from man and from soil all gave positive results.

837. Pinetti (P.) & Zonchello (S. A.). **Sul comportamento della morbilità per tigna nelle diverse età della vita.** [On the behaviour of liability to ringworm at different periods of life.]—*Rass. med. sarda*, **60**, N.S. IX, 6, pp. 639–644, 1 graph, 1958.

A study of the history of 1,862 cases of trichophytic ringworm treated during 1947–57 at the Clinica Dermosifilopatico, University of Cagliari, Sardinia, showed that incidence reached a max. in female children at 5–8 yr. of age and in male at 5–9. Of cases observed by the authors, 60% affected children between the ages of 5 and 9 yr. From the 9th yr. onwards susceptibility declined especially in females, only about 20% of patients being 10–12 yr. of age. Only 6% of the authors' patients were over 13 yr. old, the average age of puberty locally. These figures clearly demonstrate that resistance starts before the age of puberty.

838. Dall (J. A.). **A practitioner's approach to skin disease in small animals.**—*Vet. Rec.*, **70**, 49 (part 2), pp. 1029–1039, 1958. [Discussion, pp. 1040–1043.]

In the course of this comprehensive survey the author draws attention to the

difficulties of diagnosing ringworm in dogs and cats. As treatment for ringworm in dogs bathing in mercurial soap followed by plucking the affected areas and clipping a zone round each lesion while the dog is still wet is recommended. The lesions and surrounding areas are then dressed every 3rd day with 1% eugenol B.P.C. with 0·06% phenyl mercuric acetate cream well rubbed in.

For cats, some success has been obtained with 1% cadmium chloride in aerosol applied to the whole body weekly; any lesions being treated with undecylenate ointment every 3rd day.

For *Saprolegnia* [*parasitica*] infection of fish the treatment recommended is to paint the body with 10% mercurochrome or 5% methylene blue. If associated with the eye 1% silver nitrate should be used. The fish should be isolated for a week in a tank containing 1% potassium dichromate.

839. Gold (T. N.) & Jones (B. V.). **The use of hexadecamethylene-1:16 bis (isoquinolinium chloride) in the treatment of ringworm in domestic animals.** —*Brit. vet. J.*, **114**, 10, pp. 376–382, 1958.

A lotion containing 0·25% of this drug gave rapid cure of ringworm [*Trichophyton discoides*] in cattle, horses, and pigs. With cattle, daily applications for 1 week were followed by 2 further treatments at intervals of 3 days, and it was found best to mix a dye with the lotion to be sure that all lesions were treated. With horses and pigs a week of daily treatments sufficed.

840. Gentles (J. C.), Barnes (M. J.), & Fantes (K. H.). **Presence of griseofulvin in hair of Guinea Pigs after oral administration.**—*Nature, Lond.*, **183**, 4656, pp. 256–257, 1959.

Oral administration of griseofulvin to guinea-pigs infected by *Microsporum canis* or *Trichophyton mentagrophytes* has been found to arrest the progress of the disease [**3**, No. 513]. This can be explained by assuming that griseofulvin is deposited in the keratinous layer of the epidermis and penetrates into the hair follicle.

At the Dept of Bacteriology, University of Glasgow, to test this assumption, bulked samples of hair from untreated guinea-pigs and from animals that had received 23 consecutive daily oral doses of griseofulvin at 30–40 mg./kg. were extracted (by a method which is detailed) and the purified extracts subjected to bio-assay against *Alternaria solani*.

From 1 g. of hair of the treated animals 5–6 $\mu$g. of griseofulvin were obtained, about half extractable by cold water. Whether this portion was excreted through the skin and only adhered to the hair, while the other half was deposited in the hair keratin, is not at present clear.

841. Martin (A. R.). **The systemic treatment of dermatomycoses.**—*Vet. Rec.*, **70**, 52, p. 1232, 1958.

This letter from the Research Dept, Imperial Chemical Industries Ltd., Pharmaceutical Division, Macclesfield, Cheshire, notes that the effect of orally administered griseofulvin on dermatophytes observed by Gentles [**3**, No. 513] was independently observed at the above laboratory in April, 1956.

842. Ausherman (R. J.), Sutton (H. H.), & Dutcher (R. M.). **Some etiological findings in granulomatous lesions in Dogs.**—*J. Amer. vet. med. Assoc.*, **131**, 5, pp. 236–238, 1957.

The microscopical and cultural findings in smears taken from the circumscribed, suppurative, and granulomatous lesions (mostly on the muzzle, head, feet, and legs) in 42 dogs examined at Lexington, Kentucky, over a 12-month period are tabulated. Microscopical examination revealed *Trichophyton mentagrophytes* in 18, *Blastomyces dermatitidis* in 2, and *Microsporum gypseum* in 1. In cultures (on Sabouraud's medium) from 39, *T. mentagrophytes* was present in 21, and *B. derma-*

*titidis*, *M. canis*, and *M. gypseum* in 1 each. Though complement fixation tests for blastomycosis were positive in 20 of 32 cases, *B. dermatitidis* was found in only 2 of them: findings in the remaining 18 were *T. mentagrophytes* in 12, *M. canis* in 2, and no organisms in 4.

843. McKeever (S.), Menges (R. W.), Kaplan (W.), & Ajello (L.). **Ringworm fungi of feral rodents in southwestern Georgia.**—*Amer. J. vet. Res.*, **19**, 73, pp. 969–972, 1958.

McKeever (S.), Kaplan (W.), & Ajello (L.). **Ringworm fungi of large wild mammals in southwestern Georgia and northwestern Florida.**—*Ibid.*, **19**, 73, pp. 973–975, 1958.

The occurrence, abundance, and distribution of ringworm fungi in wild animals in S.W. Georgia were studied by the Newton Field Station, Technology Branch, and the Microbiology Section, Laboratory Branch, of the Communicable Disease Center, Atlanta, Georgia.

Of hair specimens cultured from 996 rodents of 8 spp., collected during 1954–56, 114 (11·4%) yielded fungi. There were 17 isolates of *Trichophyton mentagrophytes*, 14 of *Microsporum gypseum*, and 83 of *Microsporum* (red var.) (which has not been shown to be pathogenic to either man or lower animals). Lack of any evidence of infection other than positive cultures may indicate that the animals tested were merely carriers of fungus elements picked up from the environment. The range of frequency of isolation from the various species of rodents was 1·2–34·5%.

Prevalence of the fungi was found to vary according to the ecological distribution of the specimens, ranging from 6·4% for animals collected in tall weeds to 47% for those from pine woods.

There is some evidence that *T. mentagrophytes* is most abundant in areas frequented by domestic animals and is most often found on the burrowing rodent, *Peromyscus polionotus*. The data also indicate that both *T. mentagrophytes* and *M. gypseum* are abundant in some localities and scarce or absent in others.

The occurrence of the *Microsporum* (red var.) on *Sigmodon hispidus* ranged from 28·8% in March to 1·9% in July.

In the 2nd part of this investigation hair specimens from 1,758 large wild mammals from S.W. Georgia and N.W. Florida were similarly tested at the Emory University Field Station. Isolates were obtained from 21 (1·1%); 6 were *T. mentagrophytes*, all from opossums in areas frequented by domestic animals, and 15 were *Microsporum* (red var.). There was no evidence of infection in animals from which dermatophytes were isolated.

*M. gypseum* was recovered from 13 of 189 soil samples from areas trapped.

844. Mollaret (H.) & Drouhet (E.). **Teigne à Microsporum gypseum chez le Daman.** [Tinea caused by *M. gypseum* in the Daman.]—*Bull. Soc. Path. exot.*, **51**, 4, pp. 474–476, 2 pl., 1958.

*M. gypseum* was isolated at the Institut Pasteur, Paris, from 2 damans [small, herbivorous, ungulate mammals, *Procavia* or *Hyrax syriaca*] procured from the Parc National Albert, Belgian Congo.

845. Hitch (J. M.). **Piedra. Report of a fifth case originating in the U.S.A.**—*Arch. Derm., Chicago*, **79**, 1, pp. 99–100, 2 fig., 1959.

This case of black piedra in a 4-yr.-old white girl, reported from Raleigh, N. Carolina, was cured in a few weeks by removal of affected hairs. The fungus [? *Piedraia hortai*] was not identified [cf. K. H. Burdick, *Arch. Derm., Chicago*, **73**, p. 386, 1956].

846. Costello (M. J.), Defeo Jr. (C. P.), & Littman (M. L.). **Chromoblastmycosis**

**treated with local infiltration of amphotericin B solution.**—*Arch. Derm., Chicago*, **79**, 2, pp. 184–193, 8 fig., 1959.

*Phialophora pedrosoi* infection in a 47-yr.-old Negro handyman was treated at Lenox Hill Hospital, New York City, by local subcutaneous injections of a total of 245 mg. of amphotericin B [cf. **3**, No. 694–5] dissolved in 2% procaine. The lesion resolved after 8 injections over a 12-week period.

847. Silva (Margarita). **The saprophytic phase of the fungi of chromoblastomycosis: effect of nutrients and temperature upon growth and morphology.**—*Trans. N.Y. Acad. Sci.*, Ser. 2, **21**, 1, pp. 46–57, 5 graphs, 1958.

Further studies at the College of Physicians and Surgeons, Columbia University, New York [cf. **2**, No. 2350], confirmed previous observations that maize meal agar stimulates the pseudo-*Acrotheca* and Czapek-Dox the *Cladosporium* (*Hormodendrum*) type of sporulation in *Fonsecaea* [*Phialophora*] *pedrosoi*. A combination of the 2 media acted similarly in this respect to maize meal agar alone. A 10-fold rise in the N conc. in Czapek-Dox or the addition of yeast extract increased the proportion of pseudo-*Acrotheca* conidiophores. Yellow maize meal was superior to white for the induction of this type of sporulation. On none of the substrates tested did isolates of *Phialophora verrucosa* or *C. carrionii* produce any other spore types than those characterizing their respective genera.

The min., opt., and max. temps. for growth of the pathogens were determined as 10–15°, 25–35°, and 35–40° C., respectively.

848. Zapater (R. C.). **La maduromycosis en La Argentina.** [Maduromycosis in Argentina.]—*Rev. Asoc. méd. argent.*, **72**, 7, 5 pp., 1 map, 1958. [English summary. 29 ref.]

A résumé of the cases of maduromycosis so far recorded in Argentina, 18 being of the black-grained type (*Madurella mycetomi*, 13; *M. grisea*, 4; *M. tabakae*, 1) and 6 white-grained (*Allescheria boydii*, 5; unidentified 1).

849. Destombes (P.), Dutour (J.), Marguet (J.), Mariat (F.), & Segretain (G.). **Les mycétomes en côte française des Somalis.** [Mycetomata on the French coast of Somaliland.]—*Bull. Soc. Path. exot.*, **51**, 4, pp. 575–581, 2 pl., 1958.

From this report from the Institut Pasteur, Paris, and the Hôpital Peltier, Djibouti, it appears that 6 of 16 mycetomas were caused by *Madurella mycetomi*, 3 by *Streptomyces madurae*, 6 by *S. somaliensis*, and 1 by *Nocardia* (?) *asteroides* [**3**, No. 478]. Fungi developed in pure culture from 6 of 10 samples: in the remaining cases the diagnosis was based on histological examination.

850. Barnola (J.) & Velutini (L. A.). **Micetoma podal por Nocardia brasiliensis.** [Madura-foot due to *Nocardia brasiliensis*.]—*Rev. lat.-amer. Anat. Patol.*, **2**, 1, pp. 51–58, 1958. [English summary.]

In a case at the Naval and Military Hospital, Caracas, Venezuela, the lesions (limited to the soft tissues) healed after treatment with sulphamides, aureomycin, and X-rays. Nevertheless, a relapse occurred 2 months after treatment ended and 100 mg. of diaminodiphenylsulphone [**1**, No. 467; **2**, No. 942] was administered daily for 3 months. The lesions healed again and no relapse occurred 3 months after this treatment ended.

851. Mann (B.) & Pasha (M. A.). **Allergic primary pulmonary aspergillosis and Schonlein-Henoch purpura.**—*Brit. med. J.*, **1**, 5117, pp. 282–283, 1959. [28 ref.]

At the Royal Halifax Infirmary, aspergillosis in a 15½-yr.-old boy (who from the age of 4 had suffered from broncho-spasm) was diagnosed by finding *Aspergillus*

*fumigatus* in bronchial secretions, the presence of eosinophilic cell infiltration on bronchoscopic biopsy, and the well-being of the patient in spite of extensive migrating radiological chest shadows. The symptoms of Schonlein-Henoch purpura, a condition probably due to hypersensitive reaction to an allergen, appeared after the patient had been treated with nystatin and prednisolone and discharged. Treatment with nystatin and prednisolone and injections with corticotrophin was successful. This is thought to be the 1st recorded association of Schonlein-Henoch purpura with pulmonary aspergillosis.

852. Manning (L. K.) & Robertson (L.). **A case of aspergillosis treated with nystatin.**—*Brit. med. J.*, **1**, **5118**, pp. 345–346, 1 graph, 1959.

From the City General Hospital, Sheffield, is reported a case of secondary infection by *Aspergillus fumigatus* in a 36-yr.-old nurse suffering from chronic pulmonary tuberculosis. Isolates from the patient acquired *in vitro* resistance to nystatin [mycostatin] with which the infection was, however, successfully treated.

853. Jennings (A. R.). **Some causes of death in wild birds in Britain.**—*Vet. Rec.*, **70**, 38, pp. 758–760, 1958.

Examination at the Dept of Animal Pathology, University of Cambridge, of 800 wild birds (representing 104 spp.) found dead or dying showed injury to have been responsible for 29% of the deaths, infectious diseases, including aspergillosis, for 18%. The birds examined are not regarded as a representative sample of the bird population of Great Britain.

854. Grandbois (J.). **The modern treatment of North American blastomycosis.**—*Canad. med. Ass. J.*, **79**, 10, pp. 828–832, 2 fig., 1958. [French summary.]

The 3 cases of systemic infection by *Blastomyces dermatitidis*, reported from the St. Sacrement and Laval Hospitals, Quebec, were successfully treated with 2-hydroxystilbamidine (combined in 1 patient with stilbamidine). The toxicity of the drugs and the possible residual effects of treatment are discussed. The persistent trigeminal neuropathy, which is a frequent sequel to stilbamidine treatment, occurred in 1 case but did not develop in the 2 treated with 2-hydroxystilbamidine alone.

855. Lagacé (A.). **Toxic and therapeutic evaluation of stilbamidine and hydroxystilbamidine in canine blastomycosis.**—*Diss. Abstr.*, **18**, 3, p. 1065, 1958.

It is reported from the Ohio State University that stilbamidine at more than $\frac{1}{4}$ and hydroxystilbamidine at more than $\frac{1}{2}$ the usual human dose were ineffective in controlling blastomycosis (*Blastomyces dermatitidis*) in dogs, and were toxic, producing characteristic central nervous system signs and lesions.

856. Kashkin (P. N.). Кандидозы. [Candidiasis.]—271 pp., 33 fig., 'Medgiz', Leningrad, 1958. Roubles 11.40. [10 pp. Russian, 13 pp. non-Russian bibliogr.]

This useful book, largely based on the author's personal observations, covers the morphology and biology of *Candida* spp., the pathogenesis and clinical aspects of moniliasis, and laboratory diagnosis. It is intended primarily for the medical profession, and is the first such monograph for this disease in the literature of the U.S.S.R.

857. **Symposium on candidiasis arranged by the Philippine Medical Association.**

a. Roda (A. P.), Aguirre (S. A.), & Mijaro (G. S.). **Incidence of the species of Candida from different sources and their sensitivity to mycostatin.**—*J. Philipp. med. Ass.*, **33**, 4, pp. 251–255, 1957.

*C. albicans*, *C. tropicalis*, *C. krusei*, *C. stellatoidea*, and *C. pseudotropicalis* were identified.

b. Austria (G. F.). **Candidiasis.**—*Ibid.*, p. 256, 1957.

A report on various organs, especially the gastro-intestinal tract, found to yield *C. albicans*.

c. Simuangco (S. A.), Fernandez (M. C.), Campos (P. O.), Ortiz (M.), & Jacalne (A.). **Cutaneous candidiasis (a clinical and therapeutic study.)**—*Ibid.*, pp. 257–270, 1957.

The incidence of *C. albicans* is tabulated.

d. Guerrero (R. M.), Belmonte (Carmelita), Nuñez (Estela), & Rasay (Filomena). **Candidiasis in Filipino children.**—*Ibid.*, pp. 271–279, 1957.

e. Sepulveda Jr. (G.), Pio de Roda (A.), Ibarra (L. M.), & Aguirre (S. A.). **Candidiasis (Monilia). Its incidence in female lower genital tract and the therapeutic effect of mycostatin in vulvo-vaginitis due to Candida albicans.**—*Ibid.*, pp. 280–290, 6 fig., 1957.

f. Aragon (Gloria T.) & Del Rosario (Bela). **Candidiasis among pregnant Filipino women.**—*Ibid.*, pp. 291–292, 1957.

Of 200 pregnant Filipino women studied 43% yielded *Candida* on culture.

g. Recio (P. M.) & De Leon Jr. (A.). **Candidiasis of the rectoanal tract.**—*Ibid.*, pp. 293–295, 1957.

One of every 7–8 clinically asymptomatic Filipino patients attending the proctology and gastro-enterology clinics yielded *Candida* by culture.

858. Seeliger (H. P. R.). **Mykologische Berichte.** [Mycological reports.]—*Med. Mitt.*, **19**, 4, 15 pp., 18 fig. (10 col.), 1958.

Notes [cf. **3**, No. 691] on moniliasis (*Candida* spp.).

859. Lutz (A.), Grootten (O.), Witz (Mme M.-A.), & Grad (C.). **Recherches sur la fréquence des champignons levuriformes et la thérapeutique des mycoses à Candida.** [Researches on the frequency of yeast-like fungi and the therapy of mycoses due to *Candida*.]—*Strasbourg-méd.*, **8**, 9, pp. 714–732, 1957.

Lutz (A.) & Witz (Mme M.-A.). **Id. II. Antifongiques et thérapeutique des mycoses à Candida.** [Antifungal materials and the therapy of mycoses due to *Candida*.]—*Ibid.*, **8**, 10, pp. 803–811, 1957. [30 ref.]

In the 1st part the authors present the results of an investigation of the frequency of diseases caused by *Candida* spp., with special reference to the problem of their treatment. In the 2nd part they discuss the results obtained by themselves and other workers with candicidin, nystatin (mycostatin) [cf. **2**, No. 2130], and trichomycin. It is concluded that the work emphasizes the importance of the search for antifungal antibiotics, the interest that attaches to these products in clinical medicine, and the progress that has been made in the treatment of diseases caused by *C.* spp. with these materials, especially mycostatin and trichomycin.

860. Mukherjee (B. B.) & Samanta (N.). **Bronchopulmonary moniliasis.**—*J. Indian med. Ass.*, **31**, 9, pp. 363–365, 1958.

This report concerns a 22-yr.-old patient at the Sanctoria Hospital, Disergarh, W. Bengal, a colliery switchman, who showed marked sensitivity to autovaccine prepared from *Candida albicans*, isolated from the sputum. In *in vitro* tests the organism proved resistant to tetracycline and only moderately susceptible to very high concentrations of mycostatin and nystedin (1 mg. tetracycline and 1,000 units mycostatin/ml.). However, the symptoms rapidly subsided in response to an 8-day course of mystedin (250 mg. 5 times daily).

861. Galiana (J.) & Lasalle (M.). **Abcesos múltiples por Candida albicans.** [Multiple abscesses due to *C. albicans.*]—*An. Fac. Med. Montevideo*, **43**, 3–4, pp. 144–149, 1958. [English summary.]

A 3-month-old girl with a severe undetermined infection of the respiratory tract was treated at the Hospital Pereira-Rossell, Montevideo, with high doses of penicillin, streptomycin, and tetracyclines administered intramuscularly. After the treatment 4 deep abscesses appeared in the thighs and gluteal regions at the place of the injections. The smears showed a yeast-like fungus and pure cultures of *C. albicans* were obtained. No other micro-organism was cultured. The abscesses developed rather slowly, they were painless, and the regional lymph nodes were not involved. After surgical evacuation the abscesses resolved [**2**, No. 2386] without other treatment.

862. Castelazo-Ayala (L.). **Moniliasis vaginal durante el embarazo.** [Vaginal candidiasis during pregnancy.]—*Ginec. Obstet. Méx.*, **13**, 73, pp. 119–122, 1958.

Of 42 patients treated with 2% gentian violet, 88% were cured. The addition of alkaline washes did not improve this result. By the use of gentian violet and nystatin 20 of 21 patients were cured and 24 of 26 cured after treatment with nystatin and alkaline washes.

863. Mata (L.) & Jiménez (J. M.). **Reporte de un caso de granuloma hiperqueratósico producido por Candida albicans.** [A case of hyperkeratotic granuloma of the skin due to *C. albicans.*]—*Rev. Biol. trop.* (*San José*), **6**, 1, pp. 1–16, 16 fig., 1958.

In this case of a girl (30 months old) in Costa Rica, the lesions of the scalp, face, thorax, limbs, and nails showed abundant filaments of a fungus and a horny aspect. *C. albicans* was cultured from the skin lesions. This case is considered similar to those of Hauser & Rothman [**1**, No. 1709] and of Pluss & Kadas [**2**, No. 1053]. The authors think that it is possible that some other fungus, especially a dermatophyte, is the primary cause.

864. O'Donnell (J. M.). **Molluscum contagiosum and moniliasis (combined infection).**—*Med. J. Aust.*, **45** (ii), 16, pp. 536–537, 1 diag., 1958.

*Candida albicans* was isolated on maize meal agar from 1 of 7 lesions attributed to the virus of molluscum contagiosum on the left buttock of a 15-yr.-old boy at Perth, W. Australia. A rapid cure was effected by a combination of X-ray treatment and the local and oral administration of mycostatin. This is believed to be the 1st case of its kind on record.

865. Pospíšil (L.). **Agglutinations-, Komplementbindings- und Hämagglutinationsreaktion bei der Bestimmung von Candida-Arten.** [Agglutination, complement-fixation, and haemagglutination reaction in the determination of *C.* spp.]—*Dermatologica, Basel*, **118**, 2, pp. 65–73, 1959. [English and French summaries.]

At the Dermatologische Universitätsklinik, Borno, Czechoslovakia, the antigenic structure of *C. albicans, C. tropicalis, C. pseudotropicalis, C. krusei,* and *C. guilliermondii* was studied by the above-mentioned methods. The serological investigations were carried out with the serum of rabbits that had been immunized with a phenolized vaccine of the 5 spp. All 3 types of reaction were successful both in glass dishes and test tubes. Agglutination and complement-fixation gave identical results. The polysaccharides of *C. albicans* and *C. tropicalis* appeared to be identical, whereas those of other spp. were specific.

From the outcome of these studies a certain antigenic spectrum of the *C.* spp. can be envisaged which might form a basis for serological differentiation [cf. **3**, No. 874].

866. Tsubura (E.). **Experimental studies on treatment of candidiasis. Parts A & B.** —*Chemotherapy* (*Jap. Soc. Chemotherapy*), **6**, 1, pp. 72–90, 13 graphs, 1958. [Japanese. Abs. from English transl.]

At Osaka University Hospital, Japan, the course of infection in rabbits, mice, rats, guinea-pigs, and hamsters, inoculated intravenously with *Candida albicans*, was followed histologically and by culture of samples from the organs. The fungus was most pathogenic to the 3 first-mentioned. Infections were either of the septic type, with dissemination, or localized abscesses were formed, depending on the virulence of the strain used and the route of inoculation. The following methods are recommended for the evaluation of antifungal agents or antisera *in vivo*: (1) protection of mice against experimental infection of the acute septic type (controls dead in 4–10 days) by intraperitoneal inoculation of the fungus together with the test drug; (2) induction of chronic septicaemic infection in mice by intravenous inoculation, followed by administration of the drugs under test for 4–9 days by various routes; after an autopsy examination kidney tissue is cultured; and (3) therapy of experimental pulmonary infection of the abscess type in the rabbit (intrapulmonary inoculation, a period of treatment, then autopsy examination). The evaluation is based on the combined results of these tests. Of 17 antifungal antibiotics tested *in vivo* and *in vitro* trichomycin, nystatin [mycostatin], and amphotericin B were the most effective, and of 25 synthetic compounds merzin was best. The therapeutic activity of rabbit antiserum to *C. albicans* against a septic form of infection in mice ran parallel with the agglutination titre. A synergic effect was noted when any 3 of the antifungal agents trichomycin, mycostatin, merzonin and antiserum were used in combination.

867. a. Ishigami (J.). **Treatment of genitourinary candidiasis (moniliasis) with orally administered trichomycin in massive doses.**—*Rinsho-Hifu-Hinyo-kika*, **10**, 8, pp. 565–568, 1956.

Six cases at the Dept of Urology, Osaka Medical College, Osaka, Japan, responded to oral dosage of trichomycin (300,000–750,000 units daily). Two developed slight diarrhoea after 2–3 days, but in no cases were side effects serious.

b. Imamura (T.). **Treatment of disseminated candidiasis (moniliasis) with orally administered trichomycin.**—*Ibid.*, **10**, 11, pp. 801–804, 1956.

A case of disseminated *Candida albicans* infection in a 35-yr.-old woman was cured at the Internal Department, Sapporo Municipal Hospital, Sapporo, by oral treatment with trichomycin (300,000 units daily).

c. Kusunoki (T.). **A case of pancreatic candidiasis.**—*Saishin Igaku*, **11**, 11, pp. 2725–2738, 1956.

A case of moniliasis (*C. albicans*) of the pancreas, a sequel to chronic cholecocystitis, responded to oral treatment with trichomycin at the Kusunoki Medical Office, Tokyo.

The above 3 abstracts are based on translated reprints issued by the Fujisawa Pharmaceutical Co. Ltd., Osaka, Japan.

868. Karasaki (T.). **Studies on the blood concentration of trichomycin. I. Turbidimetric microdetermination of trichomycin. II. Application of the turbidimetric method to blood samples.** Karasaki (T.) & Watanabe (N.). **III. Blood concentrations of trichomycin following intravenous, intraperitoneal, and intramuscular injections. IV. Individual difference in trichomycin blood concentrations in Rabbits receiving intravenous administration.** Karasaki (T.), Watanabe (N.), & Kumada (S.). **V. Blood concentration following oral administration of trichomycin.**—*Antibiot. & Chemother.*, **7**, 5, pp. 209–217, 14 graphs; pp. 218–226, 10 graphs; pp. 227–230, 1957: **8**, 3, pp. 130–137, 10 graphs; 4, pp. 180–186, 8 graphs, 1958.

In the turbidimetric method described in the 1st of these papers from the Research Laboratory, Fujisawa Pharmaceutical Co. Ltd., Osaka, Japan, the author used *Candida albicans* and bonito extract medium. At pH 5, which gave the best results, complete inhibition of growth in 0·01–0·125% bonito extract was achieved by a 0·005 unit/ml. of the antibiotic.

In the 2nd paper it is reported that the presence of blood components (serum, plasma, or blood cell solution) at more than 0·1% caused a decrease in the sensitivity of the test, possibly by rendering the medium too nutritious. However, addition of sodium citrate and adjustment of the pH to 5·4–5·6 compensated for the presence of these components and permitted quantitative measurement of blood concentrations of the antibiotic as low as 0·1 u./ml. There was no inactivation of trichomycin by blood *in vitro*.

The 3rd paper records determinations of the antibiotic in the blood of rabbits after injection by various routes. About 40–70% of the antibiotic was recoverable from the blood after intravenous injection, a dose of 500 u./kg. body wt. giving a blood conc. of approx. 5 u./ml. Double this dose was required to achieve the same conc. by the intraperitoneal route, and by the intramuscular route 1,000 and 2,000 u./kg. gave 0·1 and 0·5 u./ml., respectively, with a longer duration than that achieved by the former method.

In the 4th it is stated that when 39 rabbits were injected intravenously (100 u./kg.) and the blood sampled after 5 min. 23 showed 1 u./ml., representing good recovery, while in the remainder the antibiotic was not demonstrable. Blood from the latter group, but not the former, inactivated the antibiotic *in vitro*.

The 5th reports that following a single oral dose (200,000 u./kg.) to rabbits, blood conc. ranged from 0·1 to 0·6 u./ml. In human subjects oral administration in the form of coated tablets (single doses of 200,000 or 500,000 units) gave blood conc. of about 0·1 u./ml. The conc. in blood cells is sometimes greater than that in the plasma.

869. Rotter (W.) & Staib (F.). **Candida tropicalis-Pneumonie. Behandlung und Verlauf.** [*Candida tropicalis* pneumonia. Treatment and course.]—*Dtsch. med. Wschr.*, **83**, 51, pp. 2285–2288, 1958.

After a 5-week course of trichomycin therapy (total of 5,000,000 units) a 56-yr.-old male patient suffering from massive infection by *C. tropicalis* was discharged from the Juliusspital, Würzburg, and several weeks later an X-ray examination revealed no abnormalities in the lungs. *C. albicans* was also sparsely represented in the sputum.

870. Blyth (W.). **The influence of antibiotics on experimental moniliasis. I. Penicillin, streptomycin, chloramphenicol, and viomycin.**—*Mycopathologia*, **10**, 2, pp. 91–112, 12 fig., 1958. [36 ref.]

Studies at the University of Edinburgh on variations in the host–parasite relationship in experimental moniliasis of the mouse after treatment with antibiotics are described. The intraperitoneal route of administration was selected, and treatment preceded inoculation with *Candida albicans* by 24 hr.

The results showed that infection increased in mice given infective and subinfective dosages of fungal inocula, when prior treatment with streptomycin alone or in combination with penicillin, chloramphenicol, and viomycin had been applied. No correlation was established between fungal infection and any particular daily schedule of administration of an antibiotic. Small increases in infection followed viomycin treatment when infective dosages of fungal inoculum were used. The protection afforded by penicillin, chloramphenicol, and viomycin was ascertained to operate at both infective and subinfective amounts of inoculum.

Modification of the progress of experimental moniliasis of the mouse by antibiotics appears to involve an alteration of some basic defence mechanism. The normal defence mechanism in a susceptible animal inoculated with a pathogenic isolate of *C. albicans* alone can be modified by varying the density of the inoculum. High densities induce an acute disease reaction; low ones a chronic reaction or no infection. The change effected in the defence reaction by antibiotics appears to negate the factor of density of inoculum. It also affects fungal pathogenicity. The true enhancement of infection induced by streptomycin and treatments with 'all antibiotics' operated at infective dosages of inoculum.

The enhancement of infection induced by prior administration of streptomycin or an 'all antibiotics' treatment indicates that modification of the host defence mechanism is probably governed by times of application of treatment and of fungal inoculum. It was observed that although the dosages of streptomycin and viomycin used before inoculation were below the levels usually considered toxic for mice, a transient anaphylactic state followed their administration and may have had some part in the modification of basic host resistance.

871. Reháček (Z.). **Produkce antifungálného antibiotika nově isolovanou aktinomycetou.** [Production of an anti-fungal antibiotic by a newly isolated actinomycete.]—*Čsl. Mikrobiol.*, **3**, 1, pp. 27–31, 1958.

At the Czechoslovakian Academy of Sciences, Ruzyne, near Prague, a substance produced by actinomycete 943 (believed to be identical with *Actinomyces flaveolus* (Krasilnikov, 1941)) was found to be primarily effective against *Candida albicans* and some plant pathogens.

872. Blinov (N. O.). **Erforschung der Antifungusantibiotika von Typ des Candicidins.** [Research on antifungal antibiotics of the candicidin type.]—*Antibiotika*, **3**, 1, pp. 58–62, 1958. [Abs. in *Chem. Zbl.*, **130**, 1, p. 172, 1959.]

At the U.S.S.R. Academy of Medical Sciences strains of *A[ctinomyces = Streptomyces] hachijoensis*, *A.* [*S.*] *viridoflavus*, *A.* [*S.*] *globisporus*, *A.* [*S.*] *canescens*, and *A.* [*S.*] *cacoi* yielded 11 antibiotics of the candicidin [**3**, No. 634] type which exerted a powerful inhibitory action on *Candida albicans* and *Saccharomyces cerevisiae* at 4,000 units/mg. From the absorption spectra of the preparations in alcoholic solutions (3 max. at 356–364, 378–382, and 400–406 mμ) they are presumed to belong to the heptene group. The addition of conc. $H_2SO_4$ resulted in the development of the blue tone characteristic of polyenes. It was further shown by paper chromatography that 4 strains of *S. globisporus* yielded 3 antibiotics, 3 of *S. hachijoensis* and 1 of *S. canescens* 2, and *S. viridoflavus* and *S. cacoi* 1 each.

873. Yacowitz (H.), Wind (S.), Jambor (W. P.), Semar (R.), & Pagano (J. F.). **Use of mycostatin for the prevention of laboratory cases of moniliasis in Chicks.** —*Poult. Sci.*, **36**, p. 1171, 1957. [*V.B.*, **28**, 1390.]

At the Squibb Institute for Medical Research, New Brunswick, the feeding of 50 g. mycostatin/ton of feed for 5–7 weeks is stated to have prevented the spread of experimental *Candida albicans* infection in Plymouth Rock chicks.

874. a. Tsuchiya (T.), Kamijo (K.), Fukazawa (Y.), Miyasaki (F.), & Kawakita (S.). **Studies on the classification of the genus Candida. IV. Relation of the isolated strains to the new antigenic structure.**—*Yokohama med. Bull.*, **7**, 3, pp. 127–132, 1956.

Following further work along lines already reported [**2**, No. 2108] it is concluded from studies on *C. albicans*, *C. tropicalis*, *C. pseudotropicalis*, *C. krusei*, *C. parakrusei*, *C. guilliermondii*, and *C. stellatoidea* that antigenic structure is a reliable basis for classification in the genus *Candida*.

b. Tsuchiya (T.), Kamijo (K.), Fukazawa (Y.), Kawakita (S.), & Nishikawa (Y.). **Further studies on the classification of the genus Candida. V. Antigenic analyses of eight species.**—*Jap. J. med. Sci. Biol.*, **9**, 3, pp. 103–112, 1956.

A further 8 *Candida* spp. (including *C. parapsilosis* and *C. utilis*) were studied, using antigens from the 7 spp. reported in the previous paper, and the total of 15 spp. was subdivided into 6 groups on the basis of antigenic structure.

c. Tsuchiya (T.), Kawakita (S.), Hayashi (S.), Sato (I.), & Takahashi (M.). **Further studies on the classification of the genus Candida. VI. Antigenic analysis of four species.**—*Yokohama med. Bull.*, **8**, 1, pp. 8–14, 1957.

*C. robusta*, *C. reukaufii*, *C. rugosa*, and *C. zeylanoides* were examined: the thermostable and thermolabile antigens of these and the 15 above spp. are tabulated.

d. Tsuchiya (T.), Kawakita (S.), Hayashi (J.), & Tobayashi (T.). **Serological classification of the genus Candida. VII. Antigenic analyses of four species.**—*Jap. J. exp. Med.*, **28**, 5, pp. 345–352, 1958.

A report on the antigenic structure of *C. melinii*, *C. tenuis*, *C. melibiosi* and *C. claussenii*.

e. Tsuchiya (T.), Fukazawa (Y.), Sato (I.), Kawakita (S.), & Katsuya (J.). **Serological and genetic relationships between Candida robusta and Saccharomyces cerevisiae.**—*Jap. J. exp. Med.*, **28**, 6, pp. 413–418, 1958.

Two strains of *C. robusta* were grown in mixed culture on sporulation media; asci formed after 1–2 weeks. A new ascigerous strain, isolated from the culture, was found to have the same biological and serological characteristics as *S. cerevisiae*.

f. Tsuchiya (T.), Fukazawa (Y.), Amemiya (S.), Yonezawa (M.), & Suzuki (K.). **Serological classification of the genus Rhodotorula.**—*Yokohama med. Bull.*, **8**, 4, pp. 215–224, 1957.

From a study of 6 *Rhodotorula* spp. it is concluded that this genus lends itself to classification by a combination of physiological and serological characters. *R. flava* did not give positive cross-agglutination with the other spp., which suggests that it is wrongly classified.

g. Tsuchiya (T.), Fukazawa (Y.), Hayashi (J.), Nishikawa (Y.), & Doi (M.). **Serological classification of the genus Hansenula.**—*Jap. J. Microbiol.*, **1**, 4, pp. 339–346, 1957.

*H. anomala*, *H. javanica*, and *H. schneggii* were shown to contain antigens identical with those of *Candida pelliculosa*. *H. saturnus* and *H. odessa* were similar, except that they possessed the thermostable antigen 21 in addition.

h. Tsuchiya (T.), Fukazawa (Y.), Sato (I.), Amemiya (S.), & Murata (T.). **Further studies on the classification of the genus Hansenula.**—*Jap. J. exp. Med.*, **28**, 2, pp. 105–114, 1958.

Of 5 further *Hansenula* spp. examined, *H. subpelliculosa* and *H. silvicola* were antigenically similar to *H. anomala*, and *H. suaveolens* and *H. mirakii* to *H. saturnus*.

i. Tsuchiya (T.), Fukazawa (Y.), Hayashi (S.), Hayashi (J.), & Doi (M.). **Serological relationships among ascosporogenous and asporogenous yeasts. I. Saccharomyces cerevisiae and Candida robusta.**—*Jap. J. Microbiol.*, **1**, 2, pp. 125–131, 1957.

The antigenic structures in *S. cerevisiae* and *C. robusta* [cf. e above] were found to be identical.

j. Tsuchiya (T.), Fukazawa (Y.), Hayashi (S.), Amemiya (S.), & Sano (Y.). **Serological relationships among ascosporogenous and asporogenous yeasts.**

**II Antigenic structures of five species of the genus Saccharomyces.**—*Jap. J. Microbiol.*, **3**, pp. 205–212, 1957.

In slide agglutination tests with monospecific and absorbed antisera *S. fragilis*, *S. marxianus*, *S. macedoniensis*, and *Zygosaccharomyces marxianus* were found to be antigenically identical with *C. pseudotropicalis*, while *S. cerevisiae* and *S. ellipsoideus* were identical with *C. robusta*.

k. Tsuchiya (T.), Fukazawa (Y.), Sato (I.), Kawakita (S.), Yonezawa (M.), & Yamase (Y.). **Serological classification of the genus Saccharomyces.** —*Yokohama med. Bull.*, **9**, 6, pp. 359–370, 1958.

A further 8 *Saccharomyces* spp. were examined by the same technique and serological and biological characters are tabulated. It is concluded that since the biological characters in these spp. were so close, serological examination is essential for accurate differentiation.

875. Akiba (T.), Iwata (K.), & Inouye (S.). **Studies on the serological diagnosis of the deep-seated candidiasis.**—*Jap. J. Microbiol.*, **1**, 1, pp. 11–19, 1957. [*B.H.*, **33**, p. 750, 1958.]

Unsatisfactory results from specific skin sensitivity and serological tests for the diagnosis of moniliasis are attributed to the use of unsuitable antigenic preparations. The authors, using a purified polysaccharide antigen, obtained satisfactory results in skin sensitivity and serum precipitin tests on rabbits previously immunized and sensitized by injections of living or heat-killed cultures of different *Candida* spp. Tests with the antigen on human subjects indicated that the tests are valuable ancillary procedures to the more precise methods of mycological diagnosis: for the skin test 3 antigenic doses (0·1, 0·2, and 0·5 μg.) should be used simultaneously, and for the precipitin test 2 concs. (500 μg./ml. and 200 μg./ml.). In all cases the precipitin titre fell and specific skin sensitivity disappeared as clinical improvement was manifested.

876. Rosenthal (S. A.) & Furnari (D.). **Slide agglutination as a presumptive test in the laboratory diagnosis of Candida albicans.**—*J. invest. Derm.*, **31**, 5, pp. 251–253, 1958.

At the Dept of Dermatology and Syphilology, New York University Post-Graduate Medical School, a slide agglutination test using adsorbed antiserum to *C. albicans* has proved a rapid and convenient method for the provisional diagnosis of this fungus isolated from clinical materials.

877. Kreger-Van Rij (N. J. W.). **The relationship between Saccharomyces tellustris and Candida bovina.**—*Leeuwenhoek J. Microbiol. Serol.*, **24**, 2, pp. 137–144, 1958.

At the Yeast Division, Centraalbureau voor Schimmelcultures, Delft, 3 strains of *S. tellustris* (Van der Walt, *Leeuwenhoek J. Microbiol. Serol.*, **23**, p. 23, 1957) and 2 of *C. bovina* [**3**, No. 452] were studied. One strain of *C. bovina*, induced to form ascospores on Gorodkowa agar, showed this fungus to be the imperfect state of *S. tellustris*. The aforementioned strains, together with 6 of the closely related *Torulopsis pintolopesii* and 2 of *C. sloofii* [cf. **3**, No. 99] were compared, and data as to vitamin requirements and sporulation are tabulated.

878. Kapica (L.) & Blank (F.). **Growth of Candida parapsilosis with keratin as sole source of nitrogen.**—*Dermatologica, Basel*, **117**, 6, pp. 433–454, 4 fig., 1958. [German and French summaries. 17 ref.]

At the Dept of Bacteriology and Immunology, McGill University, Montreal, *C. parapsilosis* grew on media containing glucose (opt. conc. 1%) and 0·5% keratin,

with or without mineral salts. Glucose was essential for the induction of growth. Human nail cuttings were a better source of N than hoof keratin in cultures containing 2% glucose, whereas the contrary was true for *C. albicans*. In cultures of *C. parapsilosis* amino acids (of which 16 were identified, compared with 7 in those of *C. albicans*), were first detected 56 days after inoculation. The total N (mainly as peptides) increased during the 8-month period of the experiment, the results of which are considered to explain the predilection of *C. parapsilosis* for keratinized tissues. Moreover, the need for glucose to release its keratolytic activities corroborates numerous clinical observations of a correlation between cutaneous moniliasis and the sugar content of keratinized tissues.

879. MacLaren (J. A.) & Armen (Diana). **Pigmentation of Candida albicans by molybdenum.**—*Amer. J. clin. Path.*, **30**, 5, pp. 411–422, 13 fig., 1958. [Summary in Interlingua.]

At the Dept of Obstetrics, Harvard Medical School, pigmentation occurred in *Candida albicans*, *C. stellatoidea*, *C. tropicalis*, *C. pseudotropicalis*, *C. krusei*, *C. guilliermondii*, *C. parapsilosis*, *Geotrichum* sp., and *Saccharomyces cerevisiae* on a basal medium consisting of 1% proteose-peptone, 4% sucrose, 1·5% agar, and distilled water, supplemented by phosphomolybdic acid at a final conc. of 1·9 mg./ml. The surface colour of streak colonies of *C. albicans* developing after 48–72-hr. incubation was medium olive. That of the other spp. ranged from white (*C. krusei*) through light grey, light to dark blue-grey, and blue to dark blue (*S. cerevisiae*).

It is suggested that the pigmentation results from the presence within the yeast cells of coloured substances arising from the reduction of accumulated molybdate.

880. Krudy (A. G.) & Hoff (R.). **'Immediate' type of coccidioidin skin reaction in pulmonary coccidioidomycosis.**—*Amer. Rev. Tuberc.*, **79**, 1, pp. 78–79, 1959. [Spanish and French summaries.]

The development within 15 min. of a skin reaction to 1:100 and 1:10 dilutions of coccidioidin in a 25-yr.-old patient with a thin-walled pulmonary cavity is reported from Valley Forge Army Hospital, Phoenixville, Pennsylvania. There was no subsequent reaction at 48 hr. *C. immitis* was demonstrated in sections and recovered by culture from the resected pulmonary lesion.

881. Blake (W. P.), Hubbard (J. W.), & Micuda (J.). **Coccidioidomycosis—report of a disseminated case in a Dog.**—*J. Amer. vet. med. Ass.*, **133**, 8, pp. 437–438, 2 fig., 1958.

This report from Phoenix, Arizona records a case of *Coccidioides immitis* infection in a 3-yr.-old female Boxer. A lesion in the area of the 4th lumbar vertebra was revealed by a lateral radiograph and confirmed at post mortem.

An extensive lesion caused by *C. immitis* in the pelvic bones of another dog is also figured.

882. Wolfe (J. N.) & Jacobson (G.). **Roentgen manifestations of torulosis (cryptococcosis).**—*Amer. J. Roentgenol.*, **79**, 2, pp. 216–227, 7 fig., 1958. [62 ref.]

The epidemiology, mycology, and pathology of 21 cases of *Cryptococcus neoformans* infection seen at the Los Angeles (California) County Hospital during 1945–56 are briefly reviewed. The disease presents no distinctive clinical features and diagnosis rests exclusively on recovery of the organism; it may be rapidly fatal or continue for periods of 12–15 yr. Nine of the patients had non-specific pulmonary lesions ranging from segmental infiltrations to discrete mass lesions indistinguishable from primary or metastatic neoplasms. Both cavitation and mediastinal lymphadenopathy may be present. Osseous lesions developed in 3 cases. Three of

the 6 surviving patients are without evidence of disease; 2 of them underwent pulmonary resection and a bone lesion was curetted in the 3rd.

883. Ata (S.) & Staib (F.). **Experimentelle Untersuchungen zur Therapie der Torulose.** [Experimental studies on the therapy of torulosis.]—*Arzneimittel-Forsch.*, **8**, 3, pp. 159–160, 1 graph, 1958. [English summary.]

At the Institut für Hygiene und Mikrobiologie der Universität Würzburg, Germany, the growth of a freshly isolated human strain of *Cryptococcus neoformans* was completely inhibited by the addition to the beer wort agar medium of trichomycin [**3**, Nos. 867–9, and below] at a conc. of 1 μg./ml. The toxicity to mice of the test strain, assessed by the method of Behrens, was $LD_{50}$ of $8{\cdot}1 \times 10^8$, resulting in 100% mortality 11 days after intraperitoneal inoculation. The incidence fell 20% with the simultaneous injection of trichomycin and to 65% when the drug was administered after symptom development.

884. Fujino (T.), Miwatani (T.), Takagi (S.), & Kimura (K.). **Effect of trichomycin on experimental cryptococcosis in Mice.**—*Med. J. Osaka Univ.*, **8**, 4, pp. 579–584, 1958.

Intravenous doses of $5 \times 10^{-1}$ and $5 \times 10^{-2}$ mg. wet weight of cells/g. mouse body weight were found to be the most appropriate for inoculation experiments with *Cryptococcus neoformans* [see above]. No toxic effect was produced by daily intraperitoneal administration for 30 days of 15 μg./10 g. weight, and 0·01 μg. trichomycin/ml. completely inhibited the growth of the fungus *in vitro*. Mice receiving $5 \times 10^{-1}$ mg. cells died within 3 days and the antibiotic exerted no curative effect It did, however, significantly prolong the survival of those given $5 \times 10^{-2}$ mg. Combined with 0·5% in mucin saline, trichomycin acted similarly even on mice treated with the heavier inoculum.

885. Rubin (H.). **Promising results in cryptococcal meningitis.**—*Neurology* (*Minneap.*), **8**, 8, pp. 590–595, 1958.

Of 10 patients with cryptococcal meningitis (*Cryptococcus neoformans*), treated at the Field Center of the Communicable Disease Center, Kansas City, with amphotericin B [**3**, No. 694 and below] (approx. 1 mg./kg. daily, given intravenously at daily or twice-daily intervals) 8 survived, and in 7, followed up over periods ranging from 2 to 14 months, the spinal fluid remained sterile.

886. Biddle (A.) & Koenig (H.). **An agent effective against cryptococcosis of the central nervous system.**—*Arch. intern. Med.*, **102**, 5, pp. 801–805, 1958. [*B.H.*, **34**, p. 225.]

Full reports from the Northwestern University Medical School, Chicago, of the successful treatment of 2 cases, both males aged 34, with amphotericin B [see above].

887. Gantz (J. A.), Nuetzel (J. A.), & Keller (L. B.). **Cryptococcal meningitis treated with amphotericin B.**—*Arch. intern. Med.*, **102**, 5, pp. 795–800, 5 fig., 1 graph, 1958.

A full report from the St. Louis (Missouri) University School of Medicine on a case of infection by *C. neoformans* of the central nervous system of a 32-yr.-old female patient at St. Mary's Hospital, which terminated fatally despite clearing of organisms from the spinal fluid and healing of facial dermatitis as a result of therapy with amphotericin B [see above].

888. Bakerspigel (A.), Campsall (E. W. R.), & Hession (B. L.). **A case of cryptococcal meningitis in south-western Ontario.**—*Canad. med. Ass. J.*, **79**, 12, pp. 998–1002, 1 fig., 1958.

Typical cultures of *Cryptococcus neoformans* developed on Sabouraud's dextrose

agar+0·5% yeast extract from specimens of the cerebrospinal fluid of a 42-yr.-old female patient at Victoria Hospital, London, Ontario [cf. **2**, No. 273]. Intraperitoneal and intracerebral inoculation into white mice caused death within 6–7 days, and the fungus was re-isolated from the infected tissues. Potential sources of infection were budgerigars and a cat. A course of therapy with a total dosage of 3 g. amphotericin B (fungizone) was apparently successful, the patient being in good health 4 months after its discontinuance.

889. Anderson (K.) & Beech (Margaret). **Serological tests for the early diagnosis of cryptococcal infection.**—*Med. J. Aust.*, **45** (ii), 18, pp. 691–692, 1958.

The early diagnosis of infection by *C. neoformans* has become particularly important in view of the potential value of amphotericin B in its therapy [see above]. In this connexion a complement-fixation test for the detection of capsular polysaccharide in body fluids is described from the Division of Bacteriology, Institute of Medical and Veterinary Science, Adelaide, Australia.

890. Schmidt (E. G.) & Thorp (Patricia). **The effect of chemotherapeutic agents upon the growth of Cryptococcus neoformans.**—*J. infect. Dis.*, **103**, 2, pp. 142–144, 1958.

At the School of Medicine, Baltimore, Maryland, the addition of the metallic ions Co, Cu, Zn, Mn, and ferrous Fe to cultures of *C. neoformans* on Sabouraud's agar did not neutralize the inhibitory action of 8-hydroxyquinoline (oxine).

Of 202 organic compounds studied *in vitro* for their action on the fungus, the most effective were rimocidin sulphate and 1-(2-phenyl-2 hydroxyethyl)-4-(1-octyl)-piperidine, which inhibited growth at 0·001 mg./ml. Other promising substances (at 0·005 mg.) were 4-amino-2-methyl-1. naphthol hydrochloride, *p*-anisaldehyde thiosemicarbazone, *bis* (5-chloro-2-hydroxyethyl) methane, DL-desthiobiotin, nitrophenide (*m*, *m*'-dinitrodiphenyl disulphide), N-octyl vanillate, phenoxyethyl dimethyl dodecyl ammonium bromide, and thiolutin.

891. Curbelo (A.), Marquez (Viola), Palacin (A.), Velasco (R.), & Ledo (E. A.). **Septicemia y meningitis a criptococcus neoformans.** [Septicaemia and meningitis due to *Cryptococcus neoformans*.]—*Arch. Hosp. univ.* (*Habana*), **9**, 5, 5, pp. 324–327, 1957. [English summary. 58 ref.]

Report of a case in Cuba. The fungus was cultured from the blood and was seen in the cerebrospinal fluid.

892. Amorim (M.) & Pascualucci (M. E. A.). **Natureza das lesões do sistema nervoso central na torulóse.** [On the nature of the lesions of the central nervous system in cryptococcosis.]—*Rev. lat.-amer. Anat. Patol.*, **2**, 1, pp. 41–50, 1958. [English summary.]

In 2 cases of *Cryptococcus neoformans* infection at the Escola Paulista de Medicina, São Paulo, Brazil, pulmonary lesions were evident and 1 showed also a lesion involving the right kidney, part of the liver, and the diaphragm.

The lesions of the central nervous system were mainly due to a chronic leptomeningitis invading the perivascular areas of Virchow and Robin. The typical spongy aspect was more evident in the cortex of the frontal lobes, in the globus pallidus, and nucleus caudatus.

893. Burrows (B.) & Barclay (W. R.). **Combined cryptococcal and tuberculous meningitis complicating reticulum cell sarcoma.**—*Amer. Rev. Tuberc.*, **78**, 5, pp. 760–768, 5 fig., 1958. [Spanish and French summaries.]

*Cryptococcus neoformans* and *Mycobacterium tuberculosis* were isolated simultaneously from the cerebrospinal fluid of a 46-yr.-old female patient at the University

of Chicago Clinics [cf. **2**, No. 2433]. There was reason to believe that the fungus was the primary cause of the meningitis.

894. Wagner (V.), Tomšiková (Mme A.), Vilím (V.), & Zdařil (J.). **Anteil der Torulastämme an der Ätiologie der Melkerknoten.** [Role of *Torula* strains in the etiology of milker's nodules.]—*Zbl. Bakt.*, Abt. 1 (*Orig.*), **173**, 3–4, pp. 260–273, 1 fig., 1958. [English, French, Spanish, and Russian summaries. 96 ref.]

Detailed clinical and microbiological observations on 8 typical cases of milker's nodules are jointly reported from the Mikrobiologisches Institut der Karls-Universität and the Universitätsklinik, Pilsen, Czechoslovakia. In 5, organisms with the biochemical properties of *Cryptococcus* (?) *hominis* [*C. neoformans*] developed along the line of demarcation between the condensation fluid and the dry portion of the medium in cultures on Sabouraud's agar. The fungus was non-pathogenic to mice unless the inoculum was supplemented by terramycin and the cotton-oil residues forming part of the diet of infected cows. No antibodies were demonstrated in the patients' sera either by the agglutination or Coombs' tests.

895. Irwin (C. N. P.) & Rac (R.). **Cryptococcus infection in a Horse.**—*Aust. vet. J.*, **33**, 4, pp. 97–98, 1 fig., 1957.

Meningeal infection (diagnosed post mortem) of a 12-yr.-old thoroughbred horse by *C. neoformans* is reported from the Institute of Medical and Veterinary Science, Adelaide. There was stiffness in gait, resembling tetanus, some jaundice, and an inability to eat or swallow. After a slight improvement, there were violent convulsions and the animal had to be destroyed.

896. Van Uden (N.), Braco Forte Jr. (M. C.), & Do Carmo Sousa (L[idia]). **Apparition de 'Cryptococcus neoformans' dans le tractus intestinal du Cheval.** [*C. neoformans* in the intestinal tract of the Horse.]—*Bull. Off. int. Epiz.*, **44**, 3–4, pp. 257–273, 1958. [*V.B.*, **28**, No. 3170.]

The authors record 1 isolate of *C. neoformans* among 145 from the caecum of 252 healthy horses at the abbatoir in Lisbon.

897. Kavit (A. Y.). **Cryptococcic arthritis in a Cocker Spaniel.**—*J. Amer. vet. med. Ass.*, **133**, 7, pp. 386–388, 2 fig., 1958.

This report from Richmond, Virginia, fully records a case of *Cryptococcus neoformans* infection in a 1½-yr.-old spayed Cocker Spaniel in which the chief signs were septic arthritis. There were also a few signs of central nervous involvement. The administration of penicillin, mycostatin, and other antibiotics had no effect in the 2-month course of the disease. The necropsy findings, which showed the infection to have been generalized, are detailed.

898. Heyn (W.). **Hautmykose bei einem Rinderfetus.** [Mycosis of the skin in a bovine foetus.]—*Dtsch. tierärztl. Wschr.*, **65**, 20, pp. 561–563, 5 fig., 1958.

At the Pathologisch-anatomischen Institut der Tierärztlichen Hochschule, Hanover, examination of a bovine foetus aborted at 6 months [cf. **3**, No. 153], revealed scattered, elevated, patch lesions of the skin, caused by a purulent-necrotic dermatitis, with extensive parakeratosis and severe inflammation of the hair follicles in the corium and subcutis. Hyphal elements present in the inflamed follicles were attributed to *Oospora lactis* [*Geotrichum candidum*], but the fungus was not cultured. The origin of the infection was not determined.

899. Baylet (R.), Hubert, & Quenum (C.). **Index histoplasmique en A.O.F.** [Histoplasmic index in French W. Africa.]—*Bull. Soc. Path. exot.*, **51**, 4, pp. 582–589, 1958.

Of 678 soldiers tested, 61 (9%) reacted positively to histoplasmin, viz. 26 from

Haute-Volta, 10 from the Sudan, 1 from Senegal, 15 from E. Guinea, 7 from the Ivory Coast, and 2 from Nigeria.

900. Manson-Bahr (P. E. C.). **Histoplasmosis in East Africa.**—*E. Afr. med. J.*, **35**, 11, pp. 625–629, 1958.

Examples of the 3 known types of infection by *H. capsulatum*—localized, disseminated, and benign pulmonary or 'cave disease'—have been recorded in E. Africa. The 1st form was described by G. Dockeray (in a personal communication), the 2nd by Davies [**3**, No. 422], while the 3rd was observed by the author in a 29-yr.-old male European who visited the Amboin caves in 1957 [cf. **3**, No. 575]. Diagnosis in the 3rd case rests on the history of exposure to bat guano, persistent pulmonary mottlings distinct from those of any other condition, a strongly positive histoplasmin skin reaction, and a positive complement-fixation test.

901. Duncan (J. T.). **Tropical African histoplasmosis.**—*Trans. roy. Soc. trop. Med. Hyg.*, **52**, 5, pp. 468–474, 2 pl. (9 fig.), 1958. [22 ref.]

A brief description is given of the clinical features of the 1st case of African histoplasmosis (in a 63-yr.-old mining engineer in Ghana), which was diagnosed by Duncan in 1943 but never fully described [see *Trans. roy. Soc. trop. Med. Hyg.*, **40**, p. 364, 1947], and a detailed study of the pathogen which Vanbreuseghem [**2**, No. 334] independently described as *Histoplasma duboisii*. It is concluded that African histoplasmosis is a histopathological entity and that while the species *H. duboisii* rests on a very slender basis its identity should be preserved either as a species or, as suggested by others [cf. **2**, No. 2096 and below], as a variety of *H. capsulatum*.

902. Wang (C. J. K.), Schwarz (J.), & Baum (G. L.). **Large forms of Histoplasma.**—*Mycopathologia*, **10**, 2, pp. 53–70, 12 fig., 1958. [32 ref.]

At the Jewish and General Hospitals, Cincinnati, the development of the laminated, onion-like, large forms of *H. capsulatum* [cf. **3**, No. 115 and above] was studied in hamsters injected intraperitoneally with the yeast phase. To compare *H. capsulatum* with *H. duboisii*, 6 groups of animals (10 hamsters and 10 mice/group) were injected intraperitoneally with 6 strains. The growth of large forms in tissue explants was studied, hamsters being infected intraperitoneally with the yeast phase of both organisms.

The results demonstrated that in the yeast phase there are 5 distinct forms of *Histoplasma*: the classical *H. capsulatum* form, ovoid and 2–5 $\mu$; occasional 'large' forms, mostly measuring 6–9 $\mu$, found in necrotic tissue and old cultures; induced giant forms up to 20 $\mu$ in tissue explants; small or large yeast cells up to 30 $\mu$ surrounded by a halo, and, finally, the duboisii form, up to 22 $\mu$ or more, found in *H. duboisii* only. The large forms of *H. capsulatum* obtained in tissue explants resemble the form found in necrotic human tissue; they have thinner cell walls than the large cells of *H. duboisii*. Most strains of *H. capsulatum* are pathogenic to mice and hamsters. *H. duboisii* does not cause death in mice, but produces progressive organ involvement in mice and hamsters and occasionally death in hamsters.

*H. duboisii* and the 'classical' *H. capsulatum* can be separated by size in the parasitic phase *in vivo* and *in vitro*; by their differences in pathogenicity for experimental animals; and by the most particular tissue response in hamsters and mice.

903. Larsh (H. W.) & Shepard (C. C.). **HeLa cells and Histoplasma capsulatum phagocytosis and subsequent intracellular growth.**—*J. Bact.*, **76**, 5, pp. 557–563, 6 fig., 1958.

At the Communicable Disease Center, Montgomery, Alabama, a range of sera from various sources were examined for their ability to promote phagocytosis of *H. capsulatum* in HeLa tissue cultures (cf. C. C. Shepard.—*J. exp. Med.*, **105**, pp. 39–

48, 1955). Guinea-pig serum was the most effective, while sera from calves, monkeys, and rabbits had no effect. In these preliminary studies serum from human patients with histoplasmosis was not noticeably more or less effective than that from healthy controls. Heating serum to 56° C. reduced its ability to promote phagocytosis of the fungus. Small inocula of the fungus (min. 3–20 cells) sufficed to infect HeLa cultures containing 20% guinea-pig serum, and the resulting plaques of infected cells were detectable under the low-power objective within 6 days.

904. Cozad (G. C.). **A study of the whole yeast cell agglutination test in Rabbits experimentally infected with Histoplasma capsulatum.**—*J. Immunol.*, **81**, 5, pp. 368–375, 1 diag., 1 graph, 1958.

At the Dept of Bacteriology, Duke University, Durham, N. Carolina, whole yeast cells of *H. capsulatum* grown on brain heart infusion agar at 37° C. proved suitable as an antigen in a tube agglutination test with sera from inoculated rabbits. The max. titres were obtained by centrifugation of the tubes immediately after the mixture of antigen and serum. Yeast cells from 3 strains of the fungus were roughly equal in combining power, while those of another agglutinated spontaneously in normal human and rabbit sera. In sera from inoculated rabbits the agglutinin titres rose rapidly during the 1st week of the disease, reached a max. by the end of the 2nd, and became negative at the close of a 9-week-period. Complement-fixation tests with whole-cell antigens were also positive after 1 week but reached a peak at 6 weeks and remained positive in high titres at the end of 13.

Tested in sera of rabbits inoculated with *Blastomyces dermatitidis*, *Sporotrichum schenckii*, *Candida albicans*, and *Coccidioides immitis*, the *H. capsulatum* agglutination antigen gave positive results only with the first.

No differences in specificity of the antigens were observed after treatment with formalin and phenol or heat inactivation.

A macroscopic slide agglutination test is described which proved valuable in 'screening' rabbit sera for the presence of antibiotics against *H. capsulatum* yeast cells.

905. Reid (J. D.), Cable (J. V.), & Laurenson (G. R.). **Histoplasmosis. A report of cases in New Zealand.**—*N.Z. med. J.*, **57**, 320, pp. 325–327, 2 pl., 1958. [*B.H.*, **34**, p. 130.]

The autopsy on a 75-yr.-old male patient at the Wellington Hospital revealed innumerable *H. capsulatum* cells in the adrenals. Mention is also made of 2 other cases diagnosed by chest X-ray and positive histoplasmin skin tests. All 3 had lived for long periods outside New Zealand.

906. Aronson (D. L.) & Edwards (Phyllis Q.). **An urban focus of histoplasmin sensitivity.**—*Amer. Rev. Tuberc.*, **79**, 1, pp. 83–86, 2 graphs, 1 map, 1959.

Details are given of a survey of elementary and high-school students (6–19 yr.) in Whitfield and Murray Counties, Georgia [cf. **3**, No. 413], from which it appears that in 1 section (a superior residential area) of the town of Dalton (Whitfield) the rate of histoplasmin sensitivity is 10–15% as compared with 4–5% in another, comprising textile mills and mainly poorer homes. In the outlying rural districts the number of reactors was lower still. No correlation could be established between these findings and the factors commonly associated with high sensitivity rates.

907. Stapff (V.) & Mackinnon (J. E.). **Tratamiento de un caso de histoplasmosis con diamidinodifenilamina.** [The treatment of a case of histoplasmosis with diamidinodiphenylamine.]—*An. Fac. Med. Montevideo*, **43**, 3–4, pp. 116–121, 1958. [English summary.]

At the Institute of Hygiene, Montevideo, Uruguay, a case of histoplasmosis of the

oropharynx and tuberculosis of the lungs was treated with diamidinodiphenylamine [cf. **3**, No. 281, 284]. After a short preliminary treatment with isoniazid and streptomycin the diamidine was injected intravenously in daily doses of 150–250 mg. Two series of 11 and 10 injections separated by an interval of 22 days were given (total dose 4·6 g.). A complete healing of the oropharyngeal lesions was obtained and no relapses occurred 8 months after the end of the treatment. The highest doses produced some vomitting. No nervous toxic symptoms were recorded. [For a preliminary account of this work see J. E. Mackinnon & V. Stapff.—*Trans. roy. Soc. trop. Med. Hyg.*, **52**, 3, p. 290, 1958.]

908. Gitter (M.) & Austwick (P. K. C.). **Mucormycosis and moniliasis in a litter of sucking Pigs.**—*Vet. Rec.*, **71**, 1, pp. 6–11, 4 pl. (16 fig.), 1959.

An outbreak of gastric mucormycosis in a litter of 2–13-day-old piglets and an unrelated case in a 2–3-week-old pig are fully described from the Central Veterinary Laboratory, Weybridge. *Rhizopus microsporus* was isolated from the stomach lesions and the bedding. There was concurrent infection by *Candida albicans* which was isolated from oral and oesophageal lesions, and from the bedding, drinking water, and air of the piglets' pen. No lesions of moniliasis were found in the unrelated case although *C. tropicalis* was isolated in quantity from the stomach.

The fungus referred to *R. microsporus* had sporangiophores 200–600 $\mu$, sporangia 30–70 $\mu$ diam. (columella 20–60 $\mu$ across), and globose, slightly roughened spores 4–6 $\mu$ diam. (against 3–4 $\mu$ for *R. microsporus* van Teigh.). Intercalary chlamydospores 10–15 × 8–22 $\mu$ were frequent.

909. Carvalho (A.). **Sôbre o uso intradérmico da paracoccidioidina (filtrado e suspensão) como meio auxiliar diagnóstico na doença de Lutz.** [The use of the skin test with paracoccidioidin (filtrates and suspensions) as a better aid to diagnosis of South American blastomycosis.]—*Monograph No. 2, Serviço Nacional de Tuberculose, Rio de Janeiro*, 54 pp., 1958.

The skin test with paracoccidioidin is considered as a complementary method for the diagnosis of South American blastomycosis (*Paracoccidioides brasiliensis*). Of 22 cases, 7 gave a permanent positive skin test to a culture filtrate of the fungus. In 8 patients the reaction was sometimes positive and sometimes negative. The antigen was used at 1/2, 1/5, and 1/10. No relation could be established between the sensitivity of the patient and the severity of the disease. Four of 21 patients reacted to histoplasmin but none to coccidioidin.

910. Douat (N. E.) & Dias (V. M.). **Intradermorreações de paracoccidioidina, coccidioidina e histoplasmina.** [Skin tests with paracoccidioidin, coccidioidin, and histoplasmin.]—*Rev. bras. Tuberc.*, **26**, 195, pp. 95–100, 1959. [English summary.]

In tests on 300 individuals from the State of Rio de Janeiro, Brazil, 24 reacted to 10% paracoccidioidin, 14 to 1% coccidioidin, and 10 to 0·2% histoplasmin, 8 individuals reacting to all 3 antigens. The antigens were prepared from cultures in Sabouraud glucose broth incubated for 30 days at room temp., autoclaved at 120° C. for 10 min., and filtered.

911. Rizzo V. (F.) & Arzube R. (M.). **Blastomycosis sudamericana. Tratamiento de un caso con sulfamethoxypyridazina y plastia quirúrgica de la cicatriz.** [South American blastomycosis. Treatment of a case with sulphamethoxypyridazine and plastic surgery of the scar.]—*Rev. ecuat. Hig.*, **14**, 4, pp. 7–10, 2 fig., 1958.

At the Hospital Luis Vernaza, a case of *Paracoccidioides brasiliensis* infection of 2 years' standing, with pulmonary lesions and a large ulcer of the lower lip, involving

the tongue and floor of the mouth, responded to a 54-day course of sulphamethoxypyridazine (initial dose 4 g., then 1 g. daily) by complete healing of the oral lesions and improvement of the pulmonary ones. The resultant oral stenosis was repaired surgically.

912. Alvarez (P. J.) & Barnola (J.). **Paracoccidioidomicosis en un niño de seis años.** [South American blastomycosis in a six-year-old child.]—*Arch. venez. Pueric.*, **21**, 67, pp. 57–70, 1958.

The main symptoms were a chronic diarrhoea and painful distension of the abdomen. The cervical lymph glands were enlarged and *Paracoccidioides brasiliensis* was found and cultured. No lesions were recorded in the oropharynx or in the lungs. The authors consider that the port of entry may have been the intestinal tract. A clinical improvement was obtained after treatment with sulphadiazine and isoniazid. The patient acquired the infection in Caracas, Venezuela. The rarity of South American blastomycosis in children is noted [**2**, No. 717].

913. Rodriguez M. (J. D.). **A propósito de un caso de blastomicosis sudamericana procedente de la provincia de Loja.** [On a case of South American blastomycosis from the Province of Loja.]—*Rev. ecuat. Hig.*, **14**, 4, pp. 11–17, 1957. [Received 1958].

Following a case report of *Paracoccidioides brasiliensis* in a 60-yr.-old Austrian man, resident in Ecuador, brief details are tabulated of 17 other cases, all in men, and knowledge of this disease is briefly reviewed.

914. Dey (N. C.), Saikia (T.), & Majumdar (C. T.). **Sporotrichosis in Assam (India).**—*Indian J. Derm.*, **3**, 3, pp. 103–109, 8 fig., 1958.

Particulars of 2 cases at the Assam Medical College Hospital, Dibrugarh, 1 yielding *S. schenckii* in pure culture; both were successfully treated with potassium iodide.

915. Heymer (T.). **Die Pilzflora der Tonsillen.** [The fungal flora of the tonsils.]—*Arch. klin. exp. Derm.*, **208**, 1, pp. 74–80, 1 fig., 1 diag., 1958.

At the Universitäts-Hautklinik, Bonn, from 260 pairs of tonsils removed on account of tonsillitis at Würzburg, Germany, the author's isolates comprised 55% yeasts (69 strains of *Candida albicans*, 25 of *C. tropicalis*, 8 of *C. brumptii*, 5 each of *C. guilliermondii* and *C. parapsilosis*, 3 each of *C. reukaufii* and *C. pulcherrima*, 2 each of *C. pseudotropicalis*, *C. robusta*, *Saccharomyces carlsbergensis*, *Torulopsis famata*, and *T. glabrata*, and 1 each of *Rhodotorula glutinis*, *Sporobolomyces roseus*, *Cryptococcus albidus*, and *Geotrichum candidum*); 41% actinomycetes (90 *Actinomyces israelii*, 7 *Streptomyces coelicolor*, 2 *S. griseus*); and 4% hyphomycetes (4 *Aspergillus fumigatus*, 2 each of *A. glaucus* and *Scopulariopsis brevicaulis*, 1 each of *Fusarium* and *Thielavia* spp.)

In the oxygen-reduced atmosphere of the tonsillar crypts the micro-aerophile actinomycetes tend to form typical nodules, while the mycelium- or pseudomycelium-forming yeasts incline to the fusion of conglomerates which lie in the crypts like foreign bodies. Here they may vegetate as saprophytes through a lifetime, exerting their pathogenic properties only when an unusual opportunity of reproduction is afforded by injuries or inflammations of extraneous origin.

916. Reiersöl (Signy) & Hoel (J.). **Saccharomyces carlsbergensis, possibly a pathogen.**—*Acta path. microbiol. scand.*, **44**, 3, pp. 313–318, 4 fig., 1958.

*S. carlsbergensis* is believed to have been concerned in a case of bronchitis in an 80-yr.-old male patient at Aker Hospital, Oslo, Norway. It occurred in large numbers in 2 expectorations taken at a month's interval and in a bronchial secretion. Moreover, intracutaneous tests with a vaccine prepared from the yeast gave positive results.